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THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY AND ALLIED DISCIPLINES

Official Organ of the Association for Child Psychology and Psychiatry

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ON DESCRIBING RELATIONSHIPS*

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INTRODUCTION

THE THESIS of this paper is a simple one—namely that the first stage in the scientific study of interpersonal relationships should be one of description and classification. Such a view seems natural to biologists, since the bases of their science were laid by the painstaking work of generations of taxonomists and systematists. Indeed biologists who study behaviour have placed great emphasis on description, often producing "ethograms" which catalogue the behavioural repertoire of the species they are studying before they analyse any one aspect in depth. For some experimental psychologists the need for description has been less obvious. This was especially the case with those learning theorists who, modelling their approach on that of classical physics, forgot that classical physics dealt to a large extent with everyday phenomena, such as falling apples, or the appearance of sticks in water, which did not require description. Where classical physics dealt with phenomena that were not immediately apparent, such as the movements of heavenly bodies or the colours produced by a prism, careful description was essential. And to carry this one stage further, it is almost a truism to say that many of the difficulties that psychiatrists face arise because they lack an adequate taxonomy, and *faute de mieux* must depend on one based on the inappropriate model of somatic disease.

Anyone examining the literature on inter-individual relationships cannot fail to be struck by the diversity of theoretical and methodological approaches used in their study, and by the dearth of attempts to integrate them. I believe that the lack of integration in this area of social science stems in part from the absence of a descriptive base. If we are to make progress in understanding relationships, or if we are to specify the conditions necessary for the development of one sort of relationship rather than another, we must surely start with a descriptive approach.

Of course this does not mean that description is an end in itself. Description, and the classification of phenomena that description makes possible, are but first steps. Indeed description must be guided by its longer-term goals, for description inevitably involves selection amongst the phenomena available for description, and that selection must be guided by the uses to which the description is to be put. Whilst the long-term goal of a comprehensive theory of inter-individual relationships is still far beyond our grasp, description may help us towards more limited objectives. It may form a basis for greater understanding of the dynamics of relationships, point to more accurate prognoses, or help us to specify the conditions necessary for the formation of this sort of relationship rather than that.

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This paper contains a tentative attempt to specify some of the dimensions along which relationships differ, and to examine their relevance to the dynamic stability of relationships. The focus is especially, but not exclusively, on parent–child relationships. The paper was first presented as part of an annual series to commemorate the work of Emanuel Miller: since Dr. Miller was initially trained in moral sciences, and had a continuing interest in the conceptual and methodological issues relating to his work, I hope its aim would have appealed to him.

In view of its complexity, the subject of interpersonal relationships might seem inappropriate for a biologist: principles useful in studying animals could be at best trivial and at worst misleading when applied to man. It is therefore perhaps necessary to explain how my concern in this topic arose. At a time when the extent to which short periods of separation between mother and infant could affect the behavioural development of the infant was controversial, we started to use rhesus monkeys for an experimental approach to the problem. The experiments showed that the distress shown by the infants after reunion was related to certain aspects of the mother–infant relationship before separation—namely to a measure of the frequency with which the infant's attempts to gain contact with the mother were rejected, and a measure of how great a part the infant had to play in maintaining mutual proximity with his mother when off her (Hinde and Spencer-Booth, 1970, 1971a). These two measures, which we had found to have predictive value, could be described colloquially as measures of "tension" in the relationship, but how were we to know that the measures we had chosen were the most useful ones? The number of things we could have measured were almost infinite, so how could we know that those chosen were the ones of greatest immediate significance or predictive value? The need for guidelines for describing relationships was apparent, but what we could find in the literature on human inter-personal relationships was only moderately helpful (see Swensen, 1973).

In such a situation, one possible approach would be to measure many aspects of the interactions in which one is interested and then, by factor analysis or some comparable technique, assess which measures co-vary and thus perhaps depend on common underlying mechanisms. But however many measures one uses, some selection must operate, and the factors extracted are inevitably limited by the data fed in.

Since selection is inevitable, how can we guide that selection along lines relevant to our long-term aims? Here it seems reasonable not to discard as preliminary guidelines the qualities we notice in everyday life—for instance is this couple affectionate or competitive, understanding or insensitive with each other? Perhaps, if we can only come to terms with such qualities with sufficient precision, they will help us towards understanding the dynamics of relationships, and indicate to us the bricks appropriate for our theoretical structure.

Now in everyday life the criteria by which such qualities are assessed are somewhat intangible, and we must attempt to associate them with objective measures. But in so doing we must also remember that objective behavioural data can be misleading if devoid of meaning (cf. Poole, 1975)—and the quickest (and sometimes only?) way to meaning may be through the use of introspective evidence. The student of interpersonal relationships must thus walk along a knife-edge: objective criteria are essential for purposes of description and communication, but this need must not lead to a neglect of the complexity and intersubjectivity inherent in relationships.

Although this work started with studies of rhesus monkeys (see Hinde and Simpson, 1975), I hope it will already be apparent that I do not believe that studying monkeys can enable us fully to comprehend human interpersonal relationships. However I do believe that principles derived from monkeys are worth trying out on man and that, in part because of the ways in which monkeys differ from man and especially because of their relative simplicity, studies of non-human primates can sometimes enable us to see more clearly issues that would otherwise be obscured by the complexity of the human case (Hinde, in press a).

INTERACTIONS AND RELATIONSHIPS

It is necessary first to define what is meant by a relationship, and to make some general points about the dynamics of relationships. A relationship involves a series of interactions in time. By an interaction we usually mean a sequence in which individual *A* shows behaviour *X* to individual *B*, or *A* shows *X* to *B* and *B* responds with *Y*. Often interactions consist of a sequence of such events, but it would be unprofitable to attempt to specify precisely either the limits of complexity of the behavioural events or even the precise dividing line between an interaction and a relationship (see discussion in Hinde, in press, b; Hinde and Stevenson–Hinde, in press).

For example, interactions involving a sequence of behavioural events can be classified according to the extent to which each response by each participant was determined by the preceding behaviour of the other participant, and how much it was predetermined and independent of the other's behaviour (Jones and Gerard, 1967). In so far as the behavioural events are independent of each other they can be considered as units: in so far as they form a predetermined sequence, that sequence can be considered as a unit. In general the distinction between an interaction, which involves a strictly limited span of time, and a relationship, which involves a much longer period, is clear enough.

To describe an interaction, it is necessary to describe first what *A* did to *B* (and *B* to *A*). They may for instance be talking or fighting or kissing. In addition we must specify how they are doing it—are they talking in an animated or dispassionate fashion? What are they talking about? Are they fighting savagely? Kissing passionately, tenderly, or dutifully? In more general terms, to what extent are they involved in what they are doing? To what extent are the different aspects of their behaviour consistent with each other? For instance, does the tone of their voices belie the words that they use (Haley, 1959). The complexity that may underlie quite brief encounters has been analysed with elegance by Goffman (1961, 1963, 1967) and will not be discussed here. We may refer to such properties of interactions as qualities, without of course any implication that they cannot be subjected to quantitative treatment. In human interactions such qualities can be as or more important than what the interactants actually did together.

A relationship involves a series of interactions* *in time*. To describe a relationship, it is necessary to describe the interactions that occur—that is, their content and their quality. It is also necessary to describe how those interactions are patterned in time—that is, their absolute and relative frequencies, when they occur with respect to each other, and how they affect each other. The importance of patterning will be discussed later: it is sufficient here to say that the most important clues to the significance and meaning of an interaction to the participants may be the context of other interactions in which it lies.

In practice, of course, we would never describe a relationship in terms of the details of all the interactions that occur—we abstract from the empirical data to make generalizations about the nature of the interactions that characterize the relationship, and how they are patterned (Hinde, in press, b). In the human case there may be short cuts to this end—interviews may permit assessment of some aspects of a relationship more rapidly than observation. Here two contradictory points must be made. On the one hand, the discrepancies between how a person says he behaves and what he actually does are notorious. On the other, as we shall see in a moment, what a person thinks about a relationship may be more important for some issues than the interactions that actually occur within that relationship. But in any case every relationship must involve a series of interactions in time; what the participants think about the relationship must be in some way related to those interactions; and description of the relationship must ultimately be derived from them.

In studying relationships, it is a proper assumption that each interaction affects the future course of the relationship, even if only by confirming the *status quo*. In other words any stability that a relationship has is dynamic in nature. Since all relationships are prone to change—either as a consequence of interactions within the relationship or through changes in the participants produced in other ways—stability in a relationship is a relative matter: it implies that the relationship continues, but need imply neither absolute constancy of content nor a specified final or goal state (Hinde and Stevenson-Hinde, in press).

The manner and extent to which one interaction affects subsequent ones is not always immediately obvious, and requires consideration of effects between behavioural, affective and cognitive levels. One rather crude experimental example will serve to exemplify this. Valins (1966) showed male subjects pictures of semi-nude females whilst providing them with a false feed-back purporting to be of their own heart rate. Both in assessments immediately after the presentations and in interviews a month later the men preferred the pictures that they *thought* had aroused them to those they *thought* had not. This suggests that in a natural interaction it is not so much the stimuli presented by each partner to the other that matter, as the extent to which the recipient of the stimuli believes himself to have been affected by them. We shall return to this issue later.

We may now discuss some of the dimensions along which relationships differ. In each case, as appropriate or necessary, some attempt is made to indicate how the dimension may affect the dynamic stability of relationships, its particular relevance to studies of the parent–child relationship, and the attempts we are making to measure it in rhesus monkeys. It will quickly become apparent that some of the dimensions are mutually related, and that each can be applied at a number of different levels of analysis.

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*This paper is concerned primarily with relationships between individuals known to each other, rather than with categories of individual relationships (e.g. "the mother–child relationship") or relationships between categories of individuals (e.g. policemen and motorists).

SOME DIMENSIONS OF RELATIONSHIPS

(i) *Content of interactions*

Description of a relationship usually starts from the content of the interactions that occur within it. Because particular types of interaction tend to be associated together, relationships can be classified according to the types of interaction they contain (Simpson, 1973). Thus a monkey consort relationship involves sex behaviour, grooming and mutual proximity, whilst a mother–infant relationship involves nursing, grooming, protection, play, proximity, etc.

Within any type of relationship, the quality of a particular one may depend on the presence or prominence of certain types of interaction. Thus we are more likely to describe a mother–infant relationship as a warm one if play is frequent than if it is scarce, though of course other criteria contribute to our judgement. In rhesus monkeys, Simpson has shown that some mothers play a game with their infants which bears some resemblances to the looking–looking away games that human mothers play (Hinde and Simpson, 1975), and preliminary data suggest that the mothers who play that game also have warm relationships with their infants as assessed by other criteria (Simpson, personal communication).

It is worth noting here that we have already applied this dimension both at the level of discriminating major functional categories of relationship (consort from mother–infant), and at the level of distinguishing some mother–infant relationships from others according to whether or not they contain play. We could go further and use the dimension to distinguish mother–infant relationships containing play from each other according to the kinds of play involved. The reader will observe that, in a similar way, many of the dimensions discussed later can apply at a number of different levels of analysis.

(ii) *Diversity of interactions*

A related characteristic concerns the *diversity* of types of interaction that occur. This approximates to what Altman and Taylor (1973) call the "breadth" of the relationship. If a relationship involves only one type of interaction, as for instance a relationship with a drinking companion or business colleague, it can be described as single-stranded or uniplex: if many, as multi-stranded or multiplex. The distinction is of course not absolute, and again depends on the level of analysis. Thus the mother–infant relationship could be called uniplex, involving only maternal–filial responses; or multiplex, involving suckling, grooming, playing, protecting and so on. The important issue is the dimension of diversity of behaviour involved, not the dichotomy.

The diversity of interactions within a relationship is of crucial importance to its dynamics, for interactions of one type may affect others in a variety of ways:

(a) *By conditioning*. In the course of each type of interaction, each participant may become conditioned to characteristics of the other not necessarily crucial for that interaction, but possibly relevant to other types of interaction. This has been studied experimentally in the context of the formation of parent–offspring relationships in birds. Each of a number of filial responses (such as begging, following, obtaining warmth) can at first be elicited by a rather wide range of stimulus situations: as a result of experience, the range of stimuli effective for each response becomes limited to those that have actually been encountered, and each response also conditioned to other aspects of the eliciting situation that were initially not effective. Since the parent bears the stimuli initially effective for several types of filial behaviour, by this conditioning some parental characteristics become effective for several responses. Thus the chick's experience in one type of interaction affects subsequent interactions of other types with the same mother (Bateson, 1966, 1973; James, 1959; Hinde, 1961). The process whereby stimuli from the mother come to be effective for diverse responses in the repertoire of the chick must surely contribute to the way in which the chick comes to respond to her not merely as a collection of separate elicitors, but as an individual. Similar principles probably operate in non-human primates, and the conditioning paradigm has been applied successfully to the formation of relationships in man (Lott and Lott, 1972; Byrne and Clore, 1970).

(b) *Through values gained and costs incurred.* Thibaut and Kelly (1959), Homans (1961) and others have linked everyday experience with reinforcement theory in the view that individuals continue to perform activities so long as the values thereby obtained outweigh the costs. (The limitations of the usefulness of the reinforcement concept in the understanding of relationships has been discussed elsewhere (Hinde and Stevenson-Hinde, in press) and the matter will not be pursued here. For present purposes it is sufficient to agree that it is useful for some purposes.) Now a relationship is extended in time, and the pay-off for one type of response may lie in the future, and perhaps in another type of interaction made possible by continued association with the same individual. In other words, much of our social behaviour depends not on an immediate return, but on expectations of future interactions with the same person. In a multiplex relationship the expectation may involve a quite different type of interaction from that currently in progress.

(c) *Through positive or negative effects of one type of interaction on others not mediated through values or costs consequent upon that type of interaction.* The mechanisms involved here are diverse. For example, some types of interaction pave the way for others: thus over a wide range of species courtship, through its endocrine or psychological effects on the partner, leads to copulation. Again, in human cultures, convention decrees that certain types of interactions (e.g. greeting ceremonies) precede others. Furthermore, whilst some types of interaction may be frequently associated with each other in a relationship, others may be (or be deemed) incompatible—for instance filial and sexual responses to the same woman.

For such reasons, the diversity of interactions within a relationship is one of its crucial characteristics.

(iii) *Reciprocity vs complementarity: control and power*

An issue which cuts across the previous ones concerns the extent to which the interactions are reciprocal (or symmetrical) or complementary. A reciprocal interaction is one in which the participants show similar behaviour, either simultaneously or alternately, whereas in a complementary interaction the behaviour of one differs from, but complements, that of the other. Thus when two monkeys engage in rough-and-tumble play they may alternately chase and be chased, bite and be bitten, as first one and then the other takes the initiative: the interaction is reciprocal. But when the young infant interacts with his mother he often shows filial behaviour, she maternal. In male–female copulatory behaviour the part taken by each is complementary to that taken by the other, but in sociosexual behaviour in a broad sense, in which either sex may be mounter or mountee, the rules are less well defined. Dominance–subordinance interactions are by definition complementary, grooming interactions more nearly reciprocal.

In some relationships, all interactions are reciprocal. For example, some relationships between young monkeys approach this condition, each participant playing equivalent, though alternating, parts. In other relationships all interactions are complementary. The classic dominance–subordinance relationship is a case in point: monkey *A* threatens monkey *B*, bites *B*, and has priority to food and water over *B;* whilst *B* avoids *A* and grooms *A* more than *A* grooms *B*. In such a case dominance–subordinance can be regarded as an intervening variable in the loose sense that it links not necessarily a number of independent and dependent variables (Miller, 1959), but at least a number of dependent ones (Hinde, 1970, p. 198). Its usefulness will depend on the number of variables so linked. Where only one dependent variable is being studied (e.g. who threatens whom?), it is of merely descriptive usefulness, but where several are involved it can be explanatory. It is useful in an explanatory sense in so far as there are regularities, across a number of relationships, in the pattern of directions of interactions. If, for instance, the participants who threaten more are usually the ones that are avoided more, receive more grooming and hold their tails highest, we may "explain" all these aspects of the relationship in terms of the "dominance–subordinance" of the participants.

In that the interactions in some relationships are consistently reciprocal, and in others consistently complementary, it might seem that relationships, rather than interactions, could be classified on this dimension. In many relationships, however, the pattern of directions of interactions does not conform to any established pattern. Thus Jackson (1959) who classified relationships (rather than interactions) into complementary relationships (i.e. those in which one receives and the other gives, or one is dominant and the other submissive) and symmetric relationships (the participants have equivalent status), introduced also a third category of "parallel" relationships. In these the relative parts played by the participants changed, with either often initiating, controlling or taking decisions in particular types of interaction. The classification of marital relationships used by Lederer and Jackson (1968) depended in part on the extent to which there was or was not agreement between the partners concerning the areas over which each exercised control. The category of "parallel" relationships thus represents a failure in the attempt to classify relationships as either complementary or reciprocal, and it would seem better to consider reciprocity versus complementarity at the level of interactions.

In any case, complementarity within a relationship may involve more than one dimension. In his classic work, Winch (1958) distinguished four types of marriage based on the two dimensions of dominance–subordinance and nurturance–receptivity. However he recognized that not all marriages fall into these types, and this is in part because of a lack of correspondence between the direction of dominance–subordinance or nurturance–receptivity amongst the different interactions within relationships. It is probably necessary to go even further than this and to recognize that "role bargaining" goes on over many contexts within the relationship with results that cannot be interpreted along just one or two dimensions (see also Maslow, 1962).

So far I have argued against the labelling of whole relationships as reciprocal or complementary, expressed doubts about the extent to which relationships can be characterized in terms of complementariness along only one or two dimensions, and argued for characterization of the types of interactions or areas within the relationships according to the nature of their reciprocity or complementariness. Such a procedure will, of course, gain accuracy only at the cost of complexity. It remains to add that even that may not be sufficient. Consider for example Berne's (1964) (1964) distinction between three "ego-states"—*Parent, Adult* and *Child.* The ego state that is dominant is inferred from current behaviour and feelings, and the terms are self-explanatory. Thus the Child is innocent, spontaneous, fun-loving; the Adult mature and oriented towards reality; and the Parent authoritative. Transactions between the two individuals can be analysed according to the ego-states involved at the time of the interchange, and these may change from moment to moment. In the current usage, a transaction between two similar ego states (e.g. Adult and Adult) could be termed reciprocal, and one between two different states (e.g. Parent and Child) as complementary.*

Now Berne has shown that the ego state of a respondent that replies may not be the ego state that was addressed, and the reply may be addressed to an ego state of the initiator other than the ego state which started the interchange. For instance, the initial remark may be addressed from adult to adult ego state, but the reply may come from the child ego state of the respondent and be addressed to the parent ego state of the initiator. Furthermore transactions may take place at two levels—an overt "social" level and covert "psychological" level. Thus the true nature of the complementarity in a relationship may require analysis beyond even the level of the interactions within that relationship (see also Haley, 1959).

Two other aspects of complementarity must be mentioned briefly—control, and power. Although the concept of "control" has been used in the preceding paragraphs, characterization of a relationship in terms of which partner has control is fraught with difficulties, and this is nowhere more apparent than in studies of the parent–child relationship. Whilst it was formerly assumed by students of human mother-child interaction (though not by ethologists concerned with non-human species) that control lay with the mother, Bell (1968) reviewed convincing evidence for the importance of the child's role. This has led to an increasing emphasis on the effects of the infant on his caregiver (Lewis and Rosenblum, 1974). It has been argued elsewhere (Hinde, 1974, 1975), however, that there is great need to specify rather precisely the questions being asked in this area. That the infant's behaviour, as well as the mother's, determines the moment to moment course of interaction sequences; and that differences in infant behaviour, as well as those in the mother's behaviour, play an important part in determining inter-dyad differences in interaction sequences, is now clear (e.g. Bell, 1974; Trevarthen, 1974). That differences between mothers at one age are related to differences between infants at a later age is shown by numerous studies involving a variety of dependent variables. Some studies go further and show both that differences between mothers at one age are related to later differences in infant behaviour, and that differences between infants at one age are related to differences between mothers at a later age (Clarke-Stewart, 1973). Finally, there is considerable evidence from monkeys that rate of change of the mother–infant relationship as the infant develops is determined more immediately by changes in the mother than by changes in the infant. This last issue has been little studied in man, but it is worth pointing out that, while we notice the over-protective mother who retards the development of her child's independence, we do not comment on the mother who weans the child from the breast before it wants to be weaned, or who moves her child from cot to bed long before it needs to move. In summary, then, questions about who has the controlling role in the relationship are for some purposes too vague; the issues must be framed more precisely if the answers are to bring understanding about the dynamics of the relationship.

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*This example has been chosen in part to air a difference in terminology. Berne classifies transactions according to whether the ego state of the respondent addressed by the initiator is the ego state that replies to the initiator, and whether it replies to the ego state by which it was addressed. If the answer to both questions is yes, the transaction is classed as "complementary" by Berne; whereas if one is no, it is classed as "crossed". Berne here is concerned with whether the participants are to continue the transaction in the mode in which it was started, or are behaving in a way that will lead to its being broken off.

Another way of approaching the question of control in the mother–infant relationship is through the concepts of exchange theory. In general, *A*'s power over *B* depends on *A*'s ability to affect outcomes for *B* and the adverse affects of the exercise of that ability on his own outcomes. Thus *A*'s power over *B* is the greater, the more he can give *B* and the less the cost of doing so. What *A* can give *B* depends both on *A*'s resources, and on *B*'s needs for those resources and the alternative sources open to *B* (Emerson, 1962). Now French and Raven (1959) have delineated five types of power, and we may speculate about how these change as the mother–infant relationship develops. *Reward* power is based on the ability of *A* to reward *B*. This operates both ways in the parent–child relationship. With young infants the rewards that the infant gives the parent, such as smiling or even just existing, seem to involve the infant in little cost. However the infant's dependency on his parents, in terms of his needs and the availability of other sources of nurturance, is high, and clearly greater than their dependency on him. The age changes in these factors, though depending on many issues including cultural ones, will clearly lead to a relative diminution in parental power. Coercive power, based on the ability of *A* to punish *B*, also operates both ways: the aversive effect that babies' cries can have is well known. In most cultures, the normal ability of parents to punish young infants, as distinct from their ability not to reward them, would seem to be small. Age changes must again be much affected by cultural factors, but probably involve an increase and then a decrease of parental power. Referent power is based on identification of *B* with *A* in such a way that *B* models himself on *A*. This probably arises primarily from reward power and is exerted primarily by parent over child, but the mother who "over-identifies" with her child is a fairly familiar figure. Expert power, which depends on *A*'s special knowledge, and legitimate power, which depends on norms internalized from the culture, also rest primarily with the parent. However changing cultural norms can perhaps be regarded as having increased the child's legitimate power over its parents. Whilst the age changes indicated above are based only on speculation, they suggest dimensions along which parent–child relationships may change with age and differ from each other.

This discussion indicates that the dimension, or dimensions, of reciprocity vs complementarity, though appearing simple at first sight, in fact involves great complexity. That does not lessen its importance for the understanding of relationships. We may mention briefly three ways in which such qualities affect the dynamic stability of a relationship:

(a) *Control and dynamic stability*. Complementarity involving control of, or power over, one partner by the other does not necessarily lead to stability in the relationship. For example Homans (1961) points out that a leader inevitably earns unpopularity by determining the behaviour of others, and this must be compensated by generous rewards. The issue has been considered in detail by Jones and Gerard (1967), who list the various ways in which the power in a relationship may be increased.

(b) *Compensatory responses*. In any continuing relationship, the behavioural propensities of the participants are likely to change with time—either as a result of interactions within the relationship, or of external vicissitudes. Small changes in one partner will require different changes in the other according to whether the interactions concerned are reciprocal or complementary. Thus in the reciprocal play interactions of rhesus monkeys, if one infant monkey changes in such a manner that he seeks to play less, his peer must change in a *similar* fashion if the relationship is to continue. But if, in a mother–infant relationship, the infant demands more contact, the mother must behave in a *complementary* fashion and provide that contact if tension is to be minimized (Hinde and Davies, 1972). (A third possibility, that change in one partner is countered by appropriate extinction, punishment or selective reinforcement in the other, has been considered elsewhere (Hinde and Stevenson-Hinde, in press)).

(c) *Complementarity leading to change*. Some relationships, by the very nature of the complementarity of their interactions, carry the seeds of their own destruction or transmutation from the very start. The parent–child and teacher–pupil relationship are obvious examples.

(iv) *Qualities of interactions*

In addition to describing what the participants in a relationship do together, we must describe how they do it. A mother rhesus may reject her infant roughly, by hitting it or pushing it away, or gently, by crossing her arms over her nipples but remaining available for the infant to cuddle against; and if she permits access, she may or may not embrace the infant as it cuddles to her.

One important quality, that we have been especially concerned with in studies of rhesus monkeys, concerns the extent to which the behaviour of each of the two individuals "meshes" with that of the other—that is, whether the goals of each are aligned with the ongoing goals of the other. For example, we have evidence that, when the infant is young, the mother often initiates bouts of ventro–ventral contact when the infant is not ready and subsequently breaks contact, and the infant similarly often initiates contact when the mother is not ready and subsequently breaks contact. This happens less often as the infant gets older. In other words although, as the infant gets older, the mother–infant relationship becomes more distant in the sense that mother and infant spend less time together, it becomes closer in that their behaviour (or some of their behaviour) becomes better meshed (Hinde and White, 1974). Again, Simpson (Hinde and Simpson, in press; Simpson, in prep.) has shown that mother–infant pairs, studied when the infants are the same age, differ in various measures of "meshing" between the partners. These data could be interpreted as involving little more than one partner ceasing to approach (or leave) the other in the absence of signals that he or she is likely to accept the move. However it could, and probably often does, involve much more—including behaviour directed towards changing the goals of the partner's behaviour (Bowlby, 1969). We have suggested that "meshing" may be the behavioural correlate of some aspects of intersubjectivity (Asch, 1952).

The importance of a similar dimension is apparent in the human parent–child relationship (Bowlby, 1969). At first, expression of the infant's demands are not related to the mother's behaviour, but gradually he comes to tailor his demands to her willingness to respond. One might predict that an infant whose mother was always equally responsive or unresponsive would have difficulty in acquiring this sort of sensitivity. Reciprocally the mother, by virtue of temperament and/or experience, must come to adjust her life so that it does not clash too dramatically with the infant's demands. It must be noted that, in at least some Western cultures, the relationships judged to be healthiest are those in which each participant makes some adjustment, so that, for example, neither follows its own intrinsic schedule or is forced slavishly to follow the other's.

It is unnecessary to say more about qualities of the mother–infant relationship, since much current research is aimed towards obtaining reliable indices of such qualities as maternal tenderness and sensitivity. The task is of course a difficult one, and the extent to which such qualities are correlated between different types of interaction in the same relationship is an open one.

A quality of one of the constituent interactions of a relationship may or may not be applicable to others. For example, a rhesus mother may be rejecting of her infant's nursing requests but not of his requests to be groomed: indeed chimpanzees and rhesus mothers often comfort infants, who are distressed because access to the nipple has been denied them, with other types of attention. Furthermore the quality even of one type of interaction may vary with the context: rhesus mothers reject their infants less when living alone than when in a group (Hinde and Spencer-Booth, 1967), and pigtailed monkey mothers hit their infants more when living in a poor laboratory environment than when in a so-called rich laboratory environment (Jensen *et al.*, 1968).

On the other hand, qualities can be valid not only for all types of interaction within a relationship, but for all or most of the relationships of a given individual. In so far as one individual behaves consistently to diverse others, but differently from the ways in which they behave to each other, he may be labelled as rejecting, cold, affectionate, and so on.

Qualities which apply to reciprocal interactions (i.e. those in which the two partners take similar parts, either at the same time or alternately as in peer–peer play) may apply either to one *or* to both partners. Thus it is possible for both partners to show sensitivity, or for one to behave with sensitivity and the other not. But where the qualities imply complementarity (i.e. two partners take different parts, as in mother–infant relationships), they often apply to the interaction more readily than to either partner independently; if one partner controls, the other must be controlled; if one rejects, the other must be rejected. Where a quality depends on both partners, it is likely to do so in complex ways. For example, how a rhesus mother rejects an infant's attempts to gain the nipple depends in part on how often he makes such attempts: the same mother might never reject an undemanding infant but vigorously reject a demanding one. But conversely how often the infant attempts to make contact will depend in part on how and how often the mother rejects him, as well as on other factors such as his changing milk requirements, the availability of playmates, and so forth.

The rewards obtained by the participants in a relationship may of course depend not only on what the participants do together, but also on how they do it. The qualities of interactions may therefore be of crucial importance for the stability of the relationship.

(v) *Relative frequency and patterning of interactions*

Some of the judgements that we make about the quality of relationships depend not so much on the content or quality of particular types of interactions, but on how interactions are patterned—that is, on their relative as well as their absolute frequency, and on how they are interrelated. For example, we should describe a mother–infant relationship in which the baby regularly cried just before feeding differently from one in which it regularly cried after feeding.

Rhesus monkeys can be used to describe a rather different type of case. If a rhesus mother frequently rejects her infant's attempts to gain ventro–ventral contact and never initiates them, we might describe her as rejecting. If she never rejects the infant and frequently initiates contact herself, we might describe her as possessive. But if she often rejects and often initiates, or seldom does either, we would describe her respectively as controlling or permissive. These latter judgements could not be based solely on one type of interaction, and must depend on both.

We are in fact dealing here with emergent qualities—qualities not present in the separate interactions, but emergent from the relations between them. Clearly the rewards obtained from a relationship—and perhaps even more the ratio of rewards to costs—may depend on such qualities.

(vi) *Multidimensional qualities*

We have already mentioned that qualities of interactions may apply to only one type of interaction, or to a range of interactions within the relationship. Sometimes our readiness to apply a quality label to a relationship depends on the concurrence of a number of characteristics. For instance, we find rhesus mothers who frequently take the initiative in making ventro–ventral contact with their infants, also place one of their arms round the infant for much of the time that it is in contact, and also rank high in the frequency with which they groom their infants (Hinde and Spencer-Booth, 1971b; Hinde and Simpson, in press). We are tempted to describe such relationships as "warm". "Warmth", however, is not simply the opposite of "rejectingness". The three measures just mentioned are only weakly negatively correlated with the frequency with which the mother rejects the infant's attempts to gain ventro–ventral contact, or the relative role that the infant has to play in keeping near the mother when off her.

Many everyday judgements about relationships turn out on analysis to depend on characteristics even more diverse than those just mentioned as aspects of "maternal warmth" in rhesus monkeys. For example, we would be more prone to describe a relationship as affectionate if:

(a) It involves interactions of a number of different types (i.e. is multiplex).
(b) It is of long duration.
(c) In the absence of the other each partner shows special types of behaviour adapted to or tending to restore proximity.
(d) The behaviour of each partner is organized in relation to the ongoing behaviour of the other (i.e. they mesh).
(e) The anxiety induced by strange objects or situations is alleviated by the presence of the partner.
(f) Actions conducive to the welfare of the other are likely to be repeated.

It is not suggested that these are all the properties on which the designation "affectionate" may depend, nor that all these are always necessary; and it will be noted that some of them would also be characteristic of long-standing enemies, and that the label of affectionate depends in part on their co-existence. These properties have been listed in part because they can all be identified, and studied with moderate rigour, even in the rhesus mother–infant relationship. But setting them out like this serves to emphasize that affection is multidimensional, and cannot be assessed along a simple scale—a point of which novelists are well aware. Furthermore, it is possible that we shall be able to use these observables in studies aimed at investigating the conditions conducive to the formation of affectionate relationships, and other less tangible properties of affectionate relationships may turn out to be associated with them. It is of course implied that each of these properties (except (b)) may affect the dynamic stability of the relationship.

(vii) *Cognitive and moral levels—levels of perspective*

Two sets of properties of crucial importance to both the nature and stability of a relationship concern the cognitive and moral levels of the participants. These are of course relatively loose terms, but I refer to the stages described by Piaget (1959), Kohlberg and Turiel (1971), and Loevinger and Wessler (1970). It will be apparent that many of the qualities of the interactions in a relationship, the kinds of complementariness that can occur, and the ability of the relationship to withstand viscissitudes, may be related to the absolute and relative cognitive levels of the participants. Furthermore, relationships may have special properties depending on the interrelations between the absolute and relative moral and cognitive levels of the participants and other characteristics of the relationship. Thus relationships involving dominance–subordinance and nurturance–dependence interactions will differ markedly in character if the partners function at different moral or cognitive levels than if they are similar in these respects.

It may be noted here that the parent–child relationship, so often held up as the source of all relationships, is highly peculiar in the discrepancy in these characters between the two participants. Its very nature depends on the differences between them. But here also is another curious thing. Recent studies of mother–infant interaction emphasize that a mother behaves to her infant as though it was functioning at a much more advanced level than is likely to be the case. She constantly imputes intent to its movements, cries and gurgles (Bruner, in press). Whilst there may be a greater element of intent than we are willing to allow (Trevarthen, 1974), mothers perpetually overestimate it. Furthermore, much of the complex interaction between mother and infant, and especially the conversational games, depend on the mother doing so. Does this mean that the mother–infant relationship depends for its nature on a delusion?

It may be profitable to link discussion of the levels of the participants in a relationship to another approach to the structure of interpersonal relationships. At the behavioural level, a relationship involves two individuals, say *A* and *B*. Yet *A*'s behaviour to *B* is directed not to *B* as he is, but to *A*'s perception of *B*, and this may bear little or no resemblance to *B* as he is. The less resemblance, the less accurate will be *A*'s predictions of *B*'s behaviour, and the less can *A*'s behaviour "mesh" with that of *B*. Similarly *B* behaves towards *A* according to *B*'s perception of *A*, which may not necessarily be closely similar to *A* as he is. Furthermore *A* may behave towards *B* in ways that *B* deems inappropriate, and/or *B* may attempt to constrain his behaviour to meet *A*'s inappropriate and inaccurate expectations. We may refer here to Secord and Backman's (1965) view that "congruency" is an important factor in interpersonal attraction. "Congruency" is the perceptual cognitive state achieved in a relationship when *B*'s characteristics or behaviour contain implications congruent with *A*'s own behaviour or self-image. Especially relevant in this context are "congruency by implication", where *A* views *B*'s behaviour as confirming *A*'s view of *A*'s self concept, and "congruency by validation" where *B*'s behaviour leads *A* to behave in ways that confirm his self concept.

It could perhaps be argued that this level of analysis is necessary even to understand an interaction between, let us say, a dominant and subordinate rhesus monkey. Indeed "meshing" (see above) at a behavioural level in a variety of contexts would be a probable correlate of "congruency". But we know from our own experience that it is also necessary to consider *A*'s view of *B*'s view of himself. This of course is the approach of Laing (1969), (Laing *et al.*, 1966), who emphasizes three levels of perspective:

Direct perspective—*A*'s view of *A*'s relationship with *B*, *A*'s relationship with *A*, *B*'s relationship with *B*, or *B*'s relationship with *A*. Similarly with *B*'s views.

Metaperspective—*B*'s view of *A*'s view of *A*'s relationship with *B*, *A*'s relationship with *A*, etc.

Metametaperspective—*A*'s view of *B*'s view of *A*'s view of *A*'s relationship with *B*, etc.

Laing has used his existential phenomenology to examine the extent to which

(a) The two participants agree at the direct level (e.g. does *A*'s view of the relationship (*AB*) agree with *B*'s view of (*AB*).

(b) They are aware of and understand the other's point of view (e.g. does *A*'s view of *B*'s view of *AB* correspond with *B*'s view of (*AB*)).

(c) They feel understood (e.g. does *A*'s view of *B*'s view of *A*'s view of himself (*AA*) agree with *A*'s view of himself).

(d) Each realizes that the other understands him (e.g. does *A*'s view of *B*'s view of *A*'s view of himself correspond with *B*'s view of *A*'s view of himself).

The importance of this approach to an understanding of the development of the mother–child relationship is apparent, as it provides a way of picturing the initial difference in complexity of cognitive functioning, and the manner in which that difference is reduced. The very fact that it is of doubtful utility to talk of the newborn's view of his relationship with his mother, implies that Laing's levels of perspective may represent also levels of development. That the infant must reconcile its own view of its mother (or of its mother's relationship with herself) with her own is a matter that has been frequently discussed (Scott, 1973a, b). That maternal understanding of the infant's view of herself is conducive to good motherhood is something we probably all believe. And we may think that it operates through the infant's feeling of the mother's understanding of the infant's view of her. However, to return to a point made earlier, it may also be that at times the mother's behaviour seems to depend on her having a view of the baby's view of her that differs from, and is in some ways more complex than, the view that the baby actually has of her.

(viii) *Penetration*

A number of writers have stressed the importance of dimensions describing the intimacy of a relationship or the extent to which the personality of each is penetrated by the other (Altman and Taylor, 1973; Rokeach, 1968; Lewin, 1964; Fromm, 1956). Altman and Taylor use a useful "onion skin" model of personality—the personality is pictured as involving central less visible areas surrounded by more numerous peripheral ones, the skins being divided into sectors corresponding to different areas (e.g. sex, the family, work, etc.), and these subdivided into units within those general areas. Gradual penetration of the onion at particular points can represent the manner in which relationships develop towards increasing intimacy. Altman and Taylor (1973) discuss two dimensions, one relating to the number of sectors (general areas) penetrated, and the other to the number of units within those sectors. It is apparent that the former may be closely related to the number of types of interaction in the relationship (see (ii) above), but the two must be distinguished. An extreme case is the confidante—someone with whom social penetration may be extensive, but with whom we engage in only one type of interaction, conversation.

The second dimension, the depth to which penetration has proceeded, is one on which Altman and Taylor (1973) place special emphasis. Although it appears intangible, they have shown that it can be assessed with some degree of objectivity.

They also list a number of overlapping dimensions of behaviour that are relevant to the penetration process—breadth of interaction; uniqueness of interaction; efficiency of exchange (e.g. sensitivity and accuracy in communication); substitutability and equivalency (i.e. the number of ways a given feeling can be conveyed); synchronization and pacing (i.e. meshing); permeability and openness; voluntariness and spontaneity; and evaluation (ability to convey positive and negative judgements about each other). It will be apparent that some of these are related to dimensions discussed in this paper.

These dimensions of breadth and depth are of crucial importance for the understanding of many adult relationships. I am not aware of studies of the parent–child relationship from this point of view. One may speculate that in the early years there is a marked imbalance in the degree of penetration with, following the levels of perspective, a trend towards a more balanced situation, the changes being especially marked (and important?) around puberty.

STAGES OF RELATIONSHIP AND SOCIAL CONTEXT

So far properties of relationships have been discussed as though they could be abstracted from the relationship and studied in the abstract. This is unlikely to be the case, for at least two reasons.

First, the dynamic properties of a relationship change as it progresses. Social exchange theorists have recognized four stages (sampling, bargaining, commitment and institutionalization) and argued that the nature of the rewarding events and the costs incurred change as the relationship proceeds (Thibaut and Kelly, 1959; Secord and Backman, 1974; Altman and Taylor, 1973). This implies that the qualities of a relationship must be considered with respect to the stage of that relationship, especially when prognosis is an issue. The point hardly needs making in the case of the parent–child relationship and has in fact already been made in several contexts: the judgements we make about a parent–child relationship are always with reference to the age of the child or (in the case of adoptions) the duration of the relationship.

Second, each participant in a relationship is enmeshed also in a network of other relationships. The rewards he obtains and the costs he incurs will affect, and be affected by, the dynamics of the other relationships in which he is involved. Thus the qualities of one relationship must be considered in the context of the other relationships in which each of the participants is involved.

CONCLUSION

It will be apparent that the list of dimensions I have given is by no means exhaustive, and that those discussed are not independent of each other. Furthermore, each can be applied at a number of different levels of analysis. The list is intended only as a temporary framework, possibly of some heuristic value, but not intended to be fundamental. How far the dimensions discussed will prove to be relevant to the questions in which we are interested is a matter that future research must decide. Perhaps, however, specification of dimensions will prove a useful preliminary to inter-relating the work of students from different disciplines—or even the work of students from the same discipline.

Finally, I would like to emphasize two points made in the introduction. First, although this paper grew from studies of rhesus monkeys, there should be no need to reaffirm that studies of non-human species can be of only limited usefulness for understanding human relationships. I hope, however, that I have justified my belief that we can exploit their differences from man. The very fact that they are so much simpler than man may enable us to try out some concepts and to set some of our thoughts in order.

Second, while I hope that a taxonomic approach will have some unifying value in this crucially important field, it is only a first step. And it is appropriate, by way of conclusion, to indicate one way in which a first step in a field as complex as this is almost inevitably an oversimplification. Some of the previous discussion has concerned the relation between the characteristics of a relationship and prognosis. But a relationship with specific characteristics may "mean" one thing to one person and another to another. Prognoses about relationships must therefore involve the personalities of the participants as well as the nature of the relationship itself. If an important dimension of personality is the extent to which behavioural propensities change with situational (relationship) determinants (Bem and Allen, 1974), unravelling the interactions between personality characteristics and dimensions of relationships will be no small task. But some agreed means of describing relationships will be an essential tool.

SUMMARY

(1) The study of inter-individual relationships requires a descriptive basis. Description, however, must be guided with respect to the ultimate goals of the investigator—understanding the dynamics of relationships, prognosis, specification of necessary conditions, etc.

(2) The nature of inter-individual relationships, how they can be described, and the nature of their stability, are discussed briefly.

(3) The following aspects of relationships are discussed: (i) Content of the component interactions; (ii) Diversity of interactions; (iii) Reciprocity vs Complementarity: Control and Power; (iv) Qualities of component interactions; (v) Relative frequency and patterning of interactions; (vi) Multidimensional qualities; (vii) Cognitive and moral levels: Levels of perspective; (viii) Penetration.

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STAFF BEHAVIOUR IN PRE-SCHOOL CENTRES

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INTRODUCTION

Belief in the critical importance of education for 3- and 4-yr-olds has been a major contributory factor in the decision to expand nursery education in this country. In particular, it is widely believed that nursery education will reduce the educational disadvantage of children from culturally and economically deprived homes. Both British and American studies have shown, however, that without special instructional programmes for the children or support systems for the staff, cognitive gains, as assessed by standardised tests, are not likely to occur (Stanley, 1972).

Virtually all such studies have investigated products not processes, that is children have been pre-tested, assigned to special instruction or to a control group and then re-tested at the end of the experiment. Staff and child behaviour has not been monitored either during the special programme, or during the rest of the school day. Interpretations of the findings must therefore be tentative. Does an increase in test scores represent a "real", i.e. generalised cognitive gain, or has the child only acquired greater ease in the question and answer situation? Were there changes in staff behaviour as a result of taking part in the programmes? If these occurred, they may have been as important as the programme itself in bringing about cognitive gains in the children. The authors attempted to answer some of these questions by a study in which relationships were sought between three sets of data—the standardised test scores of the children in pre-school centres, cognitive aspects of their spontaneous behaviour, including their play, and cognitive aspects of staff behaviour. In the present article only the first and third sets of data are reported. The observations were made in centres with three different kinds of educational orientation, traditional free-play nursery schools, nursery schools which were very similar but which had incorporated a special language session into the school day, and nurseries which operated on free-play lines but were not staffed by teachers. For each type of centre we selected for observation both units where most of the children came from the families of manual workers and units where most of the children came from the professional middle-classes. The aims of the first part of the study, reported below, were to see whether relationships could be found between the children's test scores and cognitive aspects of staff behaviour and also to see whether differences between the behaviour of staff in different centres could be related to the educational orientation and the social class of the children in the entre.

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METHODS

Design of study

A quasi-experimental design was used, with social class composition and the educational orientation of the centre as the two "crossed" factors. The educational orientation of the centre was determined by its formal characteristics: one group, the $E-$ centres, were negatively defined, as not staffed by trained teachers, not under the aegis of an educational authority and with no professed educational aims. They had been set up to care for the children of working mothers and/or to provide children with opportunities to play. E centres were traditional English nursery schools, run by educational authorities and staffed by nursery trained teachers, which pursued avowed educational aims through the medium of free play. $E+$ centres were schools which resembled E schools in most respects, but which also incorporated a language instruction or concept development session into the school day. For each of these three types of centre two units were chosen for study where the children were predominantly middle-class and two where they were predominantly working-class. There was thus 12 centres in the study.

TABLE 1. CHARACTERISTICS OF UNITS AND STAFF OBSERVED

	$E+$ Schools			E Schools			$E-$ Nurseries		
	No. of schools	No. of staff in charge	No. of staff not in charge	No. of schools	No. of staff in charge	No. of staff not in charge	No. of nurseries	No. of staff in charge	No. of staff not in charge
Middle-class composition	2	4	3	2	3	7	2	2	5
Working-class composition	2	4	6	2	3	6	2	2	6

Selection of centres

Preliminary visits were made by the authors to large numbers of schools and nurseries in order to select centres which fitted the above model, and were similar with respect to such possibly important variables as staff–child ratio, amount and variety of play equipment, general ideology and daily regimen and familial characteristics of the children. Thus Montessori-type schools were excluded because their ideology and school programme differed from that of the traditional nursery school. "Day Nurseries" run by the local authorities and most play groups were excluded because they were less well equipped than schools, structured into very small groups and in the case of day nurseries tended to cater for children from single parent or disturbed families and also to be run on more formal lines than nursery schools. In the end, because so few nurseries and play-groups are as well equipped and have as large groups as schools, and because special language sessions are so rare, the $E+$ and $E-$ centres selected themselves, as the only centres known to the authors approximating to the above criteria. In one $E+$ school the class observed was, because of the shortage of nursery teachers, in the charge of a nursery nurse. The E schools were selected on the grounds of their reputation for excellence and their ease of access. All the E and $E+$ schools were nationally, often internationally, renowned.

An attempt was made to choose one full-day and one half-day centre in each cell, but since most schools are half-day and most nurseries are full-day this balance was not achieved. In three of the four $E+$ schools and three of the four E schools most children attended only half a day, whilst only one of the four $E-$ centres was a half-day centre. The social class composition of the centres was ascertained by enquiring about the occupation of the father of every child on the register. The middle-class centres were selected from those where at least half (in most cases the great majority) of the children had fathers who were in Social Class I or II of the Registrar General's Classification of Occupations (1970), whilst the working-class centres were selected from those where at least half (in most cases the great majority) of children had fathers who were manual workers (Class IIIM, IV and V).

All the E and three of the $E+$ centres were local authority nursery schools. The fourth $E+$ centre was a university-sponsored private nursery school. At one middle-class $E+$ and working-class

E school most children attended from 9 a.m. to 3.30 p.m.; in the remaining schools children could attend for the morning or afternoon session only. The two middle-class $E-$ centres were private nurseries, in one case restricted to the children of university staff and students. They resembled nursery schools rather than day nurseries in being run on very free lines, but they were open for longer hours than schools and provided the children with tea as well as lunch. One of the working-class $E-$ centres was an all-day nursery, not a local authority "day nursery", which set out to provide a very free environment. The second was a morning play-group in a large local authority housing estate. Unlike local authority "day nurseries" none of the $E-$ centres gave priority to or had a large proportion of disturbed children or children from especially deprived or disturbed families. It should be noted that none of the centres resembled American "Headstart" centres in restricting their intake to children in need; admission was generally (subject to a waiting list) available to any child in the neighbourhood, although all the $E-$ centres charged a fee. The observed staff–child ratio varied between 1 : 6 and 1 : 11; more staff were available per child in the $E-$ nurseries than in the schools.

The pre-school setting

In all centres a great variety of play equipment was set out and the children could play with what they chose for as long as they wished. In most cases the playroom opened on to a garden and for most of the session the children could play inside or outside as they wished. A member of staff might initiate activities, e.g. collage-making or cooking, or might read aloud and the children could participate or not as they wished. The only limitation on the child's choice of activity was a daily organised story-time in eight of the twelve centres. Additionally, in the $E+$ centres the day included a special educational session. The nature of this session varied, since it was devised individually by each head-teacher, but all were verbal programmes which aimed to help the children acquire certain concepts, e.g. of space, classification, or number. In three of the four $E+$ schools not all the children received this teaching over the same period of time; either it was confined to the older children or to those considered most in need of it.

In the schools the most usual structure was to have one or more classes of 30 children in the care of one nursery-trained teacher and two nursery-trained assistants or student assistants. In one $E+$ school a nursery nurse was in charge of the class selected for observations. In the nurseries there was more often a single group of 20 or more children in the care of trained nursery nurses with untrained assistants. None of the centres had parents helping in any capacity. The age range in the $E+$ and E centres was 2 yr 11 months–5 yr 0 months, mean 3·98 yr, but since three of the four $E-$ centres also took some two year olds the $E-$ centres had a lower mean age of 3·58 years. Most of the centres were lavishly equipped with a great variety of play equipment and books, but one middle-class and one working-class $E-$ centre were rather less well equipped. The great majority of children were from stable two parent families, and were white, but in one working-class $E+$ school and one working-class $E-$ nursery nearly a third of the children had immigrant West Indian or Asian parents.

Observation of staff

Time sampling methods were used to observe staff over a period of four days, either, in the case of part-time centres, four successive mornings, or in the case of full-time centres, alternate mornings and afternoons. Where there was more than one class of children, as was the case in the schools, the class observed was chosen on the recommendation of the head-teacher, usually on the basis that the most experienced teacher was in charge. All the staff working in the class were observed in turn. As complete a record as possible was made of what the staff said and did during the first 5 sec of every 30 sec, and to whom she spoke or directed her activity. At the end of 3 min these observations were coded and the next staff member was observed. It was necessary to observe before and after the 5 sec period in order to code the staff activity, e.g. to determine for what reason she was walking across the room. Two of the authors (B.T. and J.P.) made the observations; when possible each observed one centre in each social class—educational orientation category. It was not, of course possible for the observations to be "blind", since the characteristics of the children and the centre were apparent.

The Staff Behaviour Codes used are listed in Table 2.

Most of the codes were sub-divided for the purpose of explicit definition into minor categories so that in all 42 categories were used. Since talk and action were coded separately each observation

Table 2. Codes used for observing staff

Verbal codes	Non-verbal codes	Mixed verbal and non-verbal codes
1. Talks to parents.	1. Housework, i.e. cleans, tidies room, sets tables, gets out beds, etc.	1. Administration, e.g. marks register, answers phone.
2. Talks to other staff members.	2. Deals with play equipment, i.e. prepares, takes out, puts away equipment.	2. Minimal supervision, i.e. does not interact with child in any way, and is not engaged in any other activity.
3. Positive control, i.e. instructions to child, which he is meant to obey.	3. Physical child care, i.e. washes, dresses, toilets, serves food to child, etc.	3. General supervision, e.g. greeting children, encouraging, permitting, reassuring, offering or suggesting food, drink, etc.
4. Negative control, i.e. instructions to child, which he is meant to obey, not to do something: includes refusals, reprimands and threats.	4. Affection, i.e. gives physical comfort, sits child on knee, puts arm round child, etc.	4. Play, that is playing as equal participant, e.g. with a ball, or in an imaginary game, or amusing child by pushing swing, pulling him in cart, etc.
*5. Promotes social interaction, i.e. explains and suggests with the aim of avoiding or solving disputes.	*5. Demonstrates, i.e. demonstrates a skill or use of a material.	5. Organised group activity (excluding stories), e.g. singing, dancing arranged by staff.
6. Questions child for information, or gives a child simple information or opinions.	*6. Helps, i.e. helps child carry through activity without doing it for him.	*6. Organised talk or other teaching session.
*7. Gives child extensive information or explanation, in the form of two or more simple sentences or one or more complex sentences.		
*8. Socratic Questions, i.e. questions child with object of helping him to solve a problem or clarify his ideas.		
9. Simple suggestions, i.e. suggests or offers activity to child.		
*10. Further suggestions, i.e. suggests extending child's activity in new ways.		
*11. Instructs, i.e. verbally explains to child how to carry out task.		
12. Reads or tells story aloud, to individual or group.		

* = "teacher-specific" behaviour (see text).

could, and often did, receive several codes; e.g. in one 5 sec period the staff member might have a child on her lap (non-verbal 4) whilst doing up the coat buttons of another child (non-verbal 3) and explaining to him why he must have a coat on (verbal code 3). Hence if any talk to children, or play, accompanied activities such as housework these observations would be "double-coded". Only if staff did housework or dressed a child without interacting with him further were these codes used alone.

The codes of staff behaviour were based on those used in an earlier study of residential nurseries (Tizard *et al.*, 1972) in which significant correlations were found between various aspects of staff behaviour and the mean language comprehension scores of the children in each nursery. However, on the basis of observation in schools, and discussion with teachers, further codes, marked * in Table 2 were added, which it was hoped would represent more fully the wider variation between the behaviour of trained teachers and nurses or untrained staff. A total of 51 staff were observed, of whom 13 were trained teachers, 15 were N.N.E.Bs*, 9 were untrained, 4 had a non-nursery training background, e.g. hospital nursing and 10 were nursery nurse or teaching students.

Psychological testing and selection of children

After the observations had been made a clinical psychologist, who was not part of the research team and not informed about our expectations, tested the children who had been observed in each centre with the Reynell Developmental Language Scales, Reynell (1969), and the non-verbal scale of the Minnesota Pre-school Scale (1940). The Reynell Developmental Language Scales have been developed and standardised on an English pre-school population. They consist of two scales which assess language comprehension and language expression separately. In each centre an attempt was made to observe and test 10 children, 5 aged 3 yr and 5 aged 4 yr, of whom half were boys and half girls. Other criteria for selection were that they had attended the centre for at least half a term, that their parents spoke to them in English and that the children were not handicapped or retarded. Two children who were considered abnormal by the authors and the staff, because they were never observed to play, were excluded. In middle-class centres only children of the professional middle-classes, i.e. children whose fathers had received tertiary education and were working in a profession, e.g. as doctor, teacher or lawyer, were selected; in working-class centres, only the children of manual workers were chosen. In 7 centres fewer than 10 children met the criteria; in the remaining centres, where more than 10 children met the criteria, 10 were selected randomly. In all, a main sample of 109 children was observed and tested. In addition, in 3 schools with a predominantly middle-class composition but some working-class representation, 23 children of manual workers were also observed and tested.

Predictions

The following predictions were made: (1) the cognitive content of staff behaviour would be highest in nursery schools with a language programme, where the staff might be sensitised to the cognitive aspect of their behaviour, and lowest in nurseries and play-groups not staffed by teachers, which had no professed educational aims. Cognitive content was defined as the proportion of time in which the staff were observed helping the child to learn non-disciplinary matters (Verbal codes 5–12, non-verbal codes 5 and 6, mixed codes 4 and 6) as opposed to supervising, disciplining and giving affection and physical care to the child, or cleaning and dealing with play equipment. (The definition thus included not only the special "teacher" behaviours listed in Table 2, but also giving simple information and suggestions and playing with the children.) (2) These differences would be reflected in the mean verbal, but not the non-verbal test scores of the children attending the centres. (3) Both the cognitive content of staff behaviour and all the mean test scores of the children would be higher in middle-class than working-class centres, whatever the educational orientation of the centre.

RESULTS

Reliability

During piloting the reliability of the staff observations schedule was tested by assessing the agreement between the two observers over 411 5 sec observations made on 2 consecutive days. The overall agreement in matching all codes was 80%, with an agreement on the major codes listed in Table 1 of 83%. No further reliability data were gathered during the study, although coding problems were discussed.

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*Nursery nurses who have obtained the Diploma of the Nursery Nurses Examination Board after a 2 yr practical and theoretical course in the care of young children.

1. *Staff behaviour.* Table 3 shows the overall frequency of various kinds of staff behaviour. In none of the centres could staff be described simply as "caretaking"; in about half of the observations staff were talking to the children, while "minimal supervision", that is merely watching the children without interacting in any way with them, or doing anything else, occurred on an average in only 13% of the observations. However, the special teacher behaviours asterisked in Table 2 were observed very rarely. Of the non-verbal behaviours, dealing with play equipment was observed most frequently, whilst play with the children occurred rarely.

Table 3. All centres combined

% Observations in which various staff behaviours were recorded								
Verbal Codes			Non-verbal Codes			Mixed Verbal and Non-verbal Codes		
	Mean	S.D.		Mean	S.D.		Mean	S.D.
1. Talk to parents	2·6	1·7	1. Housework	8·1	3·1	1. Administration	2·7	1·4
2. Talk to staff	6·2	3·4	2. Deals with play equipment	16·5	4·6	2. Minimal supervision	13·5	5·3
3. Positive control	7·7	1·3	3. Physical child care	9·7	4·4	3. General supervision	5·5	1·6
4. Negative control	2·8	1·5	4. Affection	5·5	4·2	4. Play	3·9	2·8
*5. Promotes social interaction	0·4	0·3	*5. Demonstrates	0·6	0·6	5. Organised activity excluding stories	4·4	3·2
6. Questions and gives simple information	18·6	6·1	*6. Helps	0·9	0·9	*6. Organised teaching	2·0	4·0
*7. Gives extensive information	3·1	2·4						
*8. Socratic questions	0·7	0·9						
9. Simple suggestions	5·6	2·1						
*10. Further suggestions	0·6	0·5						
*11. Instructs	0·8	0·4						
12. Supervisory remarks	7·5	1·9						
Talks to child	47·7	10·0						
Reads aloud	5·3	3·6						

*Teacher specific behaviour (see text).

2. *Staff behaviour, educational orientation of the centre, and social class.* Previous work had shown highly significant differences between the behaviour of staff in charge and not in charge of a group (Tizard *et al.*, 1972). Since these were also apparent in this study separate analyses were made of the behaviour of staff in charge (head of the centre and teacher or nurse in-charge of group) and staff not in charge (assistants and students). In order that the number of dependent variables should

not exceed the number of degrees of freedom in the multivariate analysis of variance not all the codes could be included. The 10 variables selected for the staff in charge analysis are listed in Table 4, together with mean scores by centre type and social class. They include all the codes initially chosen to designate "cognitive behaviour" (except verbal codes 5, 8 and 10, and mixed code 6, all of which were observed so rarely in some centres that they had to be omitted) together with the total amount of talk to children, and three codes, negative control, minimal supervision, and dealing with play equipment, which previous work had shown to be negatively correlated with language development.

TABLE 4. BEHAVIOUR OF STAFF IN-CHARGE IN DIFFERENT TYPES OF CENTRES

	Middle-class Centres			Working-class Centres		
	E+	*E*	*E*−	*E*+	*E*	*E*−
		%			%	
1. Negative control	1·5	1·6	3·7	0·7	2·4	2·7
2. Minimal supervision	5·7	14·8	13·8	8·4	16·7	20·7
3. Deals with play equipment	12·4	10·5	8·8	5·7	16·9	16·3
4. Gives and asks for simple information	26·0	23·0	17·4	27·2	16·8	7·7
5. Gives extensive information	8·1	3·9	2·3	3·0	3·0	1·1
6. Reads aloud	7·7	3·5	3·7	2·3	6·2	1·1
7. Plays	3·7	2·2	5·3	2·1	1·8	0·9
8. Demonstrates, helps, instructs	4·3	5·2	2·8	0·6	1·3	0·4
9. Makes simple suggestions	8·0	11·1	3·4	4·3	5·6	3·6
10. Talks to children	54·0	55·8	48·4	60·7	43·9	36·6

Note.—Codes 1–9 do not total 100, because some codes have been omitted from the table. Codes 4–9 are the cognitive codes.

Table 4 shows that most of the predicted differences were found; all types of "cognitive" staff behaviour as well as total amount of talk to children were observed more often in middle-class than working-class centres, whilst dealing with play equipment and minimal supervision were observed more often in working-class centres. Contrary to prediction, negative control was not used more often in working-class than middle-class centres; indeed, in all centres, the children were managed with remarkably little negative control. Within centres of both social classes all types of "cognitive" staff behaviour except in middle-class centres play were observed least often in *E*− centres, whilst most information was given to the children in *E*+ centres. As predicted, negative control and minimal supervision were observed least often in *E*+ centres. It had been expected that the educational orientation of the centre would influence the amount of staff time spent dealing with play equipment, but this was only true within the working-class centres. Table 5 shows that the centre type and social class differences between the behaviour of staff in charge were significant and that there was no significant interaction between social class and centre type. The differences between the behaviour of staff not in charge were in the same direction but none were significant.

3. *Children's test scores, educational orientation of the centre, and social class.* The mean test scores of the children grouped by educational orientation of the centre and social class are shown in Table 6. It should be noted that the Reynell Tests have

TABLE 5. MULTIVARIATE ANALYSIS OF VARIANCE: STAFF IN CHARGE

Effect	*F* ratio	*d.f.*		*p*
Centre Type	4·0	20	8	0·02
Social Class	7·4	10	4	0·03
Interaction	0·9	20	8	0·58 *N.S.*

been given a *s.d.* of 10, so that a Reynell Score of 110 has an equivalent standardisation to a Stanford Binet I.Q. of 115. These test scores were included with other aspects of the children's behaviour in a multivariate analysis of variance described in a second paper (Tizard, Philps and Plewis, in preparation) hence significance levels cannot be given for each individual test. Nevertheless, Table 6 shows that the mean scores of the middle-class children were higher than those of the working-class children on both verbal and non-verbal tests. However, those working-class children attending *E*+ centres had higher mean scores on all tests than the other working-class children; for the middle-class children, there was no effect on their test scores of attending an *E*+ school, but all three mean test scores were lowest for those children attending an *E*− centre.

TABLE 6. TEST SCORES BY CENTRE TYPE AND SOCIAL CLASS

	E+		*E*		*E*−	
	N = 14		*N* = 19		*N* = 19	
Working-class	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
Reynell Comprehension	112·9	7·5	97·7	8·9	102·8	8·5
Reynell Expression	110·5	7·4	101·9	9·7	104·7	8·8
Minnesota Non-verbal	114·1	9·0	107·9	8·9	111·8	11·6
	E+		*E*		*E*−	
	N = 19		*N* = 20		*N* = 18	
Middle-class	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
Reynell Comprehension	116·4	6·6	116·9	6·6	112·7	6·9
Reynell Expression	113·0	4·3	114·9	6·1	106·9	9·6
Minnesota Non-verbal	124·2	9·2	127·0	13·1	121·4	11·7

23 Working-class children in 3 Middle-class Schools

	Mean	*s.d.*
Reynell Comprehension	105·0	9·5
Reynell Expression	103·9	8·2
Minnesota Non-verbal	111·7	10·6

Note.—The Reynell tests have a *s.d.* of 10.

4. *Test scores of working-class children in predominantly middle-class schools.* The mean test scores of 23 working-class children attending three predominantly middle-class schools (one *E*+ centre and two *E* centres) are listed in Table 6. They are very similar to those of the working-class children in working-class *E* and *E*− centres.

5. *Length of attendance at Centre in relation to Reynell Comprehension Scores.* The overall mean length of attendance was 9·9 months, *s.d.* 5·5. The difference in length of attendance of working-class and middle-class children was very small. The mean length of attendance at *E*+ centres (8·2 months) was lower than that at *E* centres (11·5 months) or *E*− centres (11·7 months) ($F = 3{\cdot}09, p < 0{\cdot}05$). All the correlations between test scores and length of attendance were very small.

6. *Day-to-day consistency of staff behaviour.* This was assessed by correlating the frequency with which each type of behaviour was observed at each centre during the first two sessions with its frequency during the final two sessions. There was a very high measure of consistency in the amount of informative talk observed in each centre (verbal code 6, $r = 0{\cdot}97$), moderately high consistency in the total amount of talk to the children ($r = 0{\cdot}82$), the amount of minimal supervision ($r = 0{\cdot}72$), the frequency of simple suggestions ($r = 0{\cdot}74$), and playing with the children ($r = 0{\cdot}81$). Negative control ($r = 0{\cdot}63$), and demonstrating, helping and instructing ($r = 0{\cdot}65$) showed lower levels of consistency over sessions.

7. *Effect of time of day and location on staff behaviour.* No consistent differences in staff behaviour during the morning and afternoon could be observed in the 5 full day centres. In 7 centres it was possible to compare staff talk during meals or organised "snacks" and playtime. In 5 of the 7 centres there was an increase in the rate of staff talk during meals, and in 6 centres there was an increase in negative control. There was no overall trend in the rate of informative talk; in $E+$ centres, where the staff consciously used mealtimes as an educational occasion, e.g. naming and discussing the qualities of the food, there was more informative talk than in play-time; in the other centres meals were more often a disciplinary than an educational occasion, and the rate of informative talk was lower. In the 9 centres where there were sufficient observations to compare staff behaviour inside and in the garden there was a trend for a lower "cognitive content" to staff behaviour in the garden; in 7 cases the staff talked less to the children outside and used more negative control and in 8 cases the amount of minimal supervision was greater outdoors.

8. *Effects of general education and social class background of staff.* It was not possible to examine these effects independently of status. All the teachers had remained at school longer and had higher educational qualifications than the rest of the staff, except for three staff working in $E-$ centres who had university degrees or hospital nursing certificates (S.R.N.). The trained non-teaching staff (N.N.E.Bs) had left school later and with higher educational qualifications (more "O" levels) than the untrained assistants. Only one teacher as opposed to four N.N.E.Bs and six untrained assistants had fathers who were manual workers.

9. *Effect of training on staff behaviour.* It was not possible to examine the effect of teacher vs nursery nurse training independent of the centre type effect, since all the trained teachers worked in $E+$ and E centres. A comparison was however made between the behaviour of the eleven trained N.N.E.B. assistants and eleven untrained assistants. (In order to control for the effect of status, nurses in charge of units were excluded from the comparison.) There was considerable variation within both groups and no consistent trends could be seen. A comparison was also made between the behaviour of seven trained N.N.E.Bs working as assistants to teachers in schools, and seven trained N.N.E.Bs working in $E-$ centres. The numbers are too small for any conclusion to be drawn, but on all the measures examined there was a marked tendency for the cognitive content of staff behaviour to be highest amongst the N.N.E.Bs working in schools (more informative talk, more demonstrating, helping and instructing, more talk to children, less minimal supervision and less negative control.) On the other hand, the three N.N.E.Bs who were

in charge of $E-$ centres had higher "cognitive content" scores than those working as assistants in these centres.

10. *Effect of age on staff behaviour.* A previous study had found a marked correlation between the age of staff and the cognitive content of their behaviour (Tizard *et al.*, 1972). In the present study a similar trend was found amongst the 22 assistants; the older the assistant (age range 16–51 yr) the more informative talk was recorded from her ($r = 0{\cdot}43$), the less negative control ($r = -0{\cdot}54$), and the less minimal supervision ($r = -0{\cdot}51$). No such trend was apparent amongst the 13 teachers (age range 27–55 yr), and it diminished markedly amongst the assistants if staff aged less than 21 were omitted from the correlation. That is, the youngest assistants tended to interact least with the children, but over the age of 21 the relationship between age and behaviour was less marked.

DISCUSSION

Significant differences in the predicted direction were found between staff behaviours in the various types of centre. The overall totalled "cognitive content" of staff behaviour was greatest in the $E+$ centres, that is, schools which included a daily language session and least in the $E-$ centres, which had no avowed educational aims and were not staffed by teachers. Further, for each type of pre-school centre the "cognitive content" of staff behaviour was greater when the children attending it were predominantly middle-class. Thus, the greatest cognitive content in staff behaviour was found in the middle-class $E+$ centres, the least in the working-class $E-$ centres. A similar trend was found, although the differences were not significant, in the three mixed class centres, where "cognitive" staff behaviour was directed more often towards the middle-class children.

The simplest explanation for the differences between staff behaviour in the different types of school or nursery is that the behaviour of the staff in charge was influenced by the avowed educational aims, or absence of them, that predominated in the centre. The staff in the $E+$ schools, because of the introduction of a language programme, had become sensitised to the cognitive aspect of their work, and this was certainly reflected in their behaviour throughout the day. The meals and snacks as well as free-play activities were deliberately used in these schools as an opportunity to stimulate the children's language development. In the $E-$ nurseries which disclaimed educational aims, the staff talked to, and taught, the children less. This trend was particularly marked in the working-class centres. An alternative explanation is that the differences in staff behaviour between types of centre reflect the presence or absence of teacher training. There are two reasons for rejecting this explanation—the difference found between teacher behaviour in $E+$ and E schools, and the fact that one of the $E+$ classes was in fact in the charge of a nursery nurse.

If we are right, the strength with which staff believe they should influence children's cognitive development is more important than their training background. In line with this hypothesis, we found that the cognitive content of the behaviour of assistants was not greater in those who had had N.N.E.B. training, but was greater in those working in schools rather than nurseries. The implications of this argument, that altering staff conceptions about their role may be more important than giving them extra training, are in our opinion worth further investigation.

Another widely held educational tenet, that improving the staff–child ratio is of crucial importance, was not supported in our study, within the limits observed. The staff–child ratio in the *E*− nurseries was in fact lower than in the schools, and as in an earlier study in residential nurseries (Tizard *et al.*, 1972) we found that the effect of improving the staff–child ratio depends on the quality of staff behaviour. Two variables appear to be involved. If the staff see their role as mainly supervisory rather than educational the children will not benefit greatly from an improved staff–child ratio. Secondly, the social structure of the centre may effectively reduce the contribution which additional staff members make. As in an earlier study, we found a tendency for assistants and students to interact much less with the children than the staff member in charge of the group. In all centre types the staff not in charge talked to the children less, gave them less information and fewer suggestions, used more negative control and spent more time in minimal supervision and dealing with play equipment. In the residential nursery study, because junior staff were often left in charge of the group we were able to show that the differences between the behaviour of senior and junior staff were due to role allocation rather than training. In the present study this role change rarely occurred, but we believe that the same process was at work. In so far as staff not in charge of a group are led to see their role primarily in terms of wiping tables and tidying up rather than interacting with children, their educational effectiveness is likely to be limited.

The fact that there was a marked difference in the behaviour of the staff in middle-class and working-class centres is another important topic for further investigation. In a second study (Tizard, Philps and Plewis, in preparation) we show that there is little difference in the frequency with which middle-class and working-class children approach the staff (variances within each social class group are very large).

Either the staff saw the middle-class children as more likely to respond to "cognitive" behaviour, or the children themselves, by their type of initiation or response, altered the output of such behaviour. We have not yet analysed the qualities of the individual staff–child interaction. Alternative hypothesis such as that the staff working in the middle-class centres or the *E*+ centres were themselves of higher social class or education are not supported by the evidence. However, it is worth noting that in *E*+ working-class schools "cognitive" staff behaviour was more often seen than in any middle-class centre except the middle-class *E*+ schools —that is, an apparently deliberate attempt by the staff to raise the cognitive content of their behaviour was a highly compensating measure, although the gap between middle- and working-class *E*+ schools remained. It is noteworthy that in the middle-class centres the staff not only talked more to the children, but played with them more often. This difference may represent a response to the children's expectations, since it is known that middle-class parents more often play with their children (Wootton, 1974). The very small amount of staff time spent in play may surprise those unfamiliar with pre-school centres. It reflects the current educational ideology that play should be self-directed, but perhaps represents a neglect of a valuable medium for communicating with children at both an intellectual and emotional level. In the case of young staff particularly, the preferred method of interacting with children is often through play. If this method is discouraged, their communication tends to be impoverished.

How important were the differences in staff behaviour for the children's development? Our data suggest that with one marked exception the test scores reflect familial rather than school influence. The exception is the test scores of the working-class children attending $E+$ schools which were significantly higher than those of the other working-class children. This finding is the more interesting in that none of the children tested had as yet taken part in the special language session. Their test scores must therefore reflect the high cognitive content of the ordinary day-to-day staff behaviour in these centres. The inference which we draw is that it is not the "programme" itself which is important, but the behaviour of staff throughout the day which in these centres was influenced by their implementation of a 20 min language session. Such an interpretation would explain the fact reported in a number of studies and discussed by Weikart (cf Stanley, 1972) that all cognitively oriented programmes appear to have about the same effect. The present study gives quantitative support of this view which, if correct, has important implications for teacher training and teaching practice. By contrast, the working-class children in middle-class schools had test scores very similar to those of working-class children in working-class schools and nurseries. That is, there appeared to be little if any "brush-off" from the mixing of social classes, perhaps because the staff tended to direct their "cognitive" behaviour to the middle-class children.

There was a definite tendency for the middle-class children in $E-$ nurseries to have lower than expected test scores. The interpretaion of this finding is made difficult because two factors are confounded—the children were away from their parents for longer periods each day than the children in schools, so that familial influences were weaker; at the same time the cognitive content of the staff behaviour was lower than in the schools. The finding does suggest, however, that a relative retardation of middle-class children may occur in certain group situations.

Since the children were not randomly allocated to centres, and we made no observations in their homes, an alternative explanation for the I.Q. findings is that there were systematic differences in the backgrounds of children attending the different types of centre. The hypothesis is not supported by any evidence available to us; the occupations of the fathers of children in different centres were very similar within each social class, whilst family size was in fact smallest in the middle-class $E-$ centres and largest in the working-class $E+$ schools.

In view of both the smallness of our sample and the lack of knowledge about the robustness of the Manova statistical model (Tatsuoka, 1971), all the findings must of course be regarded as highly tentative and in need of replication, although it is true that a significant result is more revealing if obtained from a small sample. We believe, however, that the study raises important issues which require further investigation and intervention, particularly with respect to the appropriateness of the traditional nursery school pedagogy for working-class children, and the relationship between training, role allocation and educational orientation as influences on staff behaviour.

SUMMARY

Staff were observed in pre-school centres with three different kinds of educational orientation, traditional free-play nursery schools, nursery schools which used a language teaching session and nurseries run on free-play lines but not staffed by teachers. Half of the centres selected contained predominantly working-class children, half predominantly middle-class. Significantly more "cognitive" staff behaviour was observed in middle-class than working-class centres, and the amount of "cognitive" staff behaviour was also significantly influenced by the educational orientation of the centre. The working-class children in schools with a language programme had significantly higher language test scores than other working-class children.

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ADOLESCENT TURMOIL: FACT OR FICTION?*

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INTRODUCTION

ALTHOUGH the period of adolescence has provided a constant source of fascination to adults, psychiatric and psychological writings on the topic are characterised more by confident assertion than by the presence of well based knowledge. The flavour of some of the most prevalent views on adolescence is best conveyed by a few quotations. Thus, Blos (1970) asserts (p. 11): "The more-or-less orderly course of development during latency is thrown into disarray with the child's entry into adolescence . . . adolescence cannot take its normal course without regression". Anna Freud (1958) writes: "Adolescence is by its nature an interruption of peaceful growth, and . . the upholding of a steady equilibrium during the adolescent process is in itself abnormal . . . adolescence resembles in appearance a variety of other emotional upsets and structural upheavals. The adolescent manifestations come close to symptom formation of the neurotic, psychotic or dissocial order and merge almost imperceptibly into . . . almost all the mental illnesses". Geleerd (1957) states: "Personally I would feel greater concern for the adolescent who causes no trouble and feels no disturbance". Eissler (1958) thinks of adolescence as predominantly "stormy and unpredictable behaviour marked by mood swings between elation and melancholy".

Psychiatrists and psychologists generally suppose that adolescence is a period of great psychological upheaval and disturbance. Furthermore, psychiatric disorders, which occur during this age period are often thought to be different from those in either childhood or adult life. Thus, Josselyn (1954) maintains that: "A typical adolescent may present a picture today of hysteria while the history indicates that a month ago his behaviour appeared typically impulsive". Eissler (1958) suggests the same variability and unpredictability when he states: ". . . (adolescent) psychopathology switches from one form to another, sometimes in the course of weeks or months, but also from one day to another. . . . The symptoms manifested by such patients may be neurotic at one time and almost psychotic at another. Then, sudden acts of delinquency may occur, only to be followed by a phase of perverted sexual activity".

These suppositions are reflected in psychiatrists' diagnostic habits, at least in the U.S.A. Among adolescents seen at outpatient clinics "transient situational

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disorder" constituted much the commonest diagnostic category (Rosen *et al.*, 1965) and even among psychiatric inpatients the diagnosis was made in nearly a quarter of all adolescents (U.S. Department of Health, Education and Welfare, 1966).

Adolescence is the age-period when there is supposed to be an "identity crisis". As they achieve increasing autonomy and independence from their family of origin, youngsters struggle to achieve a sense of their own distinct personality. It is said that adolescents generally become increasingly estranged from their families and that parents complain that they can no longer "get through" to their children. Erikson (1955) has described identity formation as the main characteristic of adolescence. During this period of development the childhood identifications cease to be useful and a new configuration has to develop. The crisis at this point may lead to "role confusion" or "identity diffusion". He writes, ". . . in spite of the similarity of adolescent 'symptoms' and episodes to neurotic and psychotic symptoms and episodes, adolescence is not an affliction, but a *normative crisis*, i.e. a normal phase of increased conflict characterized by a seeming fluctuation in ego strength . . . what under prejudiced scrutiny may appear to be the onset of a neurosis, often is but an aggravated crisis which might prove to be self-liquidating and, in fact, contributive to the process of identity formation".

Social scientists have sometimes gone further in arguing that adolescents form a separate culture which has little in common with the rest of society. Coleman (1961), one of the most influential writers on this topic, states firmly (p. 3) that the adolescent: ". . . is 'cut off' from the rest of society, forced inward toward his own age group, made to carry out his whole social life with others his own age. With his fellows he comes to constitute a small society, one that has most of its important interactions *within* itself, and maintains only a few threads of connection with the outside adult society".

All these aspects of adolescence are "known" as part of our folklore but how far are they true? Is adolescent turmoil a fact or is it merely a picturesque fiction? In considering these questions let us first consider the source of these views. Adelson (1964) has argued that the mystique of adolescence is summarised by two caricatures: the "visionary–victim", a noble idealist betrayed, exploited or neglected by the adult world; and the "victimizer", leather-jacketed, cruel, sinister and amoral. He points out that the latter is based on the delinquents who hit the news headlines and who are prominent in films and novels, and that the former is based on the sensitive, articulate, intense, intelligent, estranged middle-class adolescent on whom the psychoanalytic theory of adolescence is almost exclusively based. Neither can be held to be representative of the ordinary teenager and generalizations based on clinical practice are very likely to be seriously misleading. Adelson suggests that epidemiological studies of the general population are required if you are to talk about the characteristics of the normal adolescent and that data should be preferred to personal opinions. All the quotations given above refer to clinical anecdote and opinion, with one exception—that of Coleman (1961). His statement about the separate culture of adolescence came from a book reporting interviews with a representative sample of over 7000 adolescents. It has the air of a definitive study but, as Jahoda and Warren (1965) have pointed out, much of his argument consists either of bald statements of assumption or appeals for agreement and the empirical base is shaky. The Coleman study is much quoted as showing the existence of a separate youth culture, so it is appropriate to consider the evidence provided. For example, in order to assess the relative importance of parents and friends, the youngsters were asked "which . . . would be hardest for you to take—your parents' disapproval . . . or breaking with your friends?" (p. 5). As Epperson (1964) noted, *breaking* with someone and receiving *disapproval* differ in both emotional importance and likelihood of occurrence. In spite of this manifestly loaded question, over half the adolescents still said that parental disapproval counted for more than breaking with a friend. On the next page, Coleman (1961) states, ". . . those who 'set the standard' are more oriented than their followers to the adolescent culture itself. The consequences of this fact are important, for it means that those students who are highly regarded by others are themselves committed to the adolescent group, thus intensifying whatever inward forces the group already has". This supposedly important fact is based on a difference between 53·8 and 50·2%. Moreover, even in the group supposedly committed to youth culture a *majority* actually found parental disapproval harder to take than breaking with a friend. Later in the book (p. 139) much is made of adolescents' resistance to parental pressures but the figures show that some 70% would not join a school club if their parents disapproved. Further on still (p. 286) Coleman comments on the students' alienation from teachers. The table supporting the text shows that only 12·4% of students thought teachers were "not interested in teenagers".

More examples could be given but these are enough to indicate that in this emotionally loaded topic the actual data require careful examination before the conclusions based on those data are accepted. Needless to say, that also applies to the investigations reported in this paper.

Isle of Wight study

Nevertheless, in order to avoid the pitfalls of selective sampling and of personal opinion, the research findings are presented here in some detail and most emphasis is placed on epidemiological studies of the general population rather than on investigations of clinic patients. A variety of published studies are mentioned but most findings refer to the Isle of Wight study of 14–15-yr-olds. The methodology has been fully described previously (Rutter, Tizard and Whitmore, 1970; Graham and Rutter, 1973), but the main research strategy was as follows. Parents and teachers completed behavioural questionnaires for the total population of 2303 adolescents. From this overall group, two subsamples were chosen for individual study, (1) a random sample of the general population ($N = 200$), and (2) all the children with high, that is "deviant", scores on the questionnaires ($N = 304$)*. The children in both these groups were individually interviewed by psychiatrists (who did not know which subsample the child was in), and the parents and teachers of the youngsters were also interviewed using a standardized approach. On the basis of this detailed information an individual psychiatric diagnosis was made for each child who showed any disorder. As well as information relevant to psychiatric status, many systematic data were obtained about the adolescent's leisure activities and about patterns of family life using methods developed by Rutter and Brown (Brown and Rutter, 1966; Rutter and Brown, 1966). The children also received psychological testing which included the short WISC (Wechsler, 1949), the Neale Analysis of Reading Ability (Neale, 1958), and the Vernon arithmetic–mathematics test (Vernon, 1949).

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*This includes children selected because of contact with psychiatric services or the Juvenile Court during the previous year.

In addition to this cross-sectional survey, the study included a follow-up of all the children in the same age group who had been found to have psychiatric disorder at age 10 yr during the course of a previous epidemiological enquiry (Rutter, Tizard and Whitmore, 1970).

Alienation

So much for methodology. Let us now turn to the questions and to the findings. In doing this it is important to be clear just what are the hypotheses to be considered. First, we will take the concept of alienation, which suggests that during adolescence youngsters become increasingly estranged from their parents. A corollary of this is that the peer group comes to take precedence over the family as an influence on young people's behaviour. Coleman's (1961) study has already been mentioned in this connection and it has been suggested that, his claims notwithstanding, his data suggest that most adolescents are still considerably influenced by their parents. The relevant items seem to be; (1) that just over half the sample of American high school students felt that parental disapproval would be harder to take than breaking with a friend, (2) that most would follow parental suggestions regarding club membership, (3) that only a few felt that teachers were not interested in them and (4) that being accepted and liked by other students was rated as below average importance compared with pleasing parents, learning as much as possible at school, and living up to their religious ideals. In fact, the evidence provides few definitive findings. Also, although the findings suggest that parental influence is still high in adolescence, they say nothing about the quality of relationships or the closeness of ties.

Epperson's findings (1964), based on a much smaller survey of high school students, take the issue a little further in that he directly compared parental disapproval and friend's disapproval; 80% of adolescents said that parental disapproval would make them more unhappy than the disapproval of friends. Furthermore, secondary school students were if anything more concerned about parental approval than were younger children.

Douvan and Adelson (1966) were concerned with similar issues in their questionnaire survey of over three thousand American adolescents, mainly aged 14–16 yr. Most of the questions tapped attitudes and some of the findings were; (a) that of all other people parents were most often admired, (b) helping at home was the major source of self-esteem, (c) just over half said they had some part in rule-making at home, (d) most would be honest and trusting with their parents and (e) a quarter never had arguments with their parents. On the other hand, many had disagreements about clothing, dating, or being allowed to go out. Also four-fifths reported that they would like their parents to be less restrictive. About half stated that they thought friendship could be as close as family relationships. Douvan and Adelson conclude that, although inter-generation conflict exists, its importance has been much exaggerated. Normal adolescents share with their parents a common core of values in spite of sharp disagreements about matters of dress, hair length, pop music and how late they can stay out at night.

The findings from other studies are closely similar. For example, Meissner (1965), in another questionnaire survey of high school youngsters, found that about half thought their parents understood them, the great majority were satisfied and happy at home, and three-quarters generally approved of their parents' discipline. Nevertheless, about half thought their parents old-fashioned and although only a minority resisted parental discipline, the proportion was somewhat higher in late adolescence. Offer (1969) in a study of "modal" adolescents (in effect, the most normal third of the population) reported that most got on well with their parents and shared their values.

The Isle of Wight findings, which provide the only English data, are broadly in keeping with the American results.

TABLE 1. PARENT–CHILD ALIENATION AT 14 yr (GENERAL POPULATION SAMPLE)

	Boys ($n = 98$)	Girls ($n = 94$)
Parental account		
Altercation with parents (any)	17·6%	18·6%
Physical withdrawal of child (any)	12·1%	6·9%
Communication difficulties with child (any)	24·2%	9·3%*

* $\chi^2 = 5{\cdot}93$; 1 *d.f.*; $p < 0{\cdot}025$.

Table 1 shows some of the relevant findings from the parental interview. Parents were asked if they had any arguments with their adolescent children concerning when and where they went out, or about other activities. Only one in six parents in the randomly selected control group reported any altercations, although twice as many said they disapproved of their youngsters' clothing or hair styles and often prohibitions in these areas were enforced. The great majority of parents approved of their children's friends, and nearly all had discussed with their children what they might do when they left school.

In order to assess the extent to which the adolescents had become alienated or had withdrawn from their families, parents were first asked if their child tended to withdraw by going off to his room, or staying out of the house, or just not doing things with the rest of the family. This was termed "physical withdrawal" and as shown in Table 1 only a tiny minority of adolescents did so. We next asked if the parents had any difficulties "getting through" to their child and how much the youngster discussed with his parents how he was feeling and what were his plans. In the case of boys almost a quarter of the parents reported some emotional withdrawal or difficulty in communication, but in the great majority of cases this difficulty had always been present. In only 4% of cases had difficulties increased during adolescence. Communication difficulties were much less frequent with girls ($\chi^2 = 5{\cdot}93$; 1 *d.f.*; $p < 0{\cdot}025$).

Table 2 shows parent–child relationships as assessed from the interview with the adolescent. About two-thirds reported that they never disagreed with their parents about any of their activities and altercations were present in only a minority.

TABLE 2. PARENT–CHILD ALIENATION AT 14 yr (GENERAL POPULATION SAMPLE)

	Boys (n = 98)	Girls (n = 94)
Child's account		
Disagreements with parents (any)	32·3%	26·7%
Altercations with parents (any)	41·7%	30·2%
Criticism of mother (any)	27·1%	36·8%
Criticism of father (any)	31·6%	31·0%
Rejection of mother (any)	3·1%	2·3%
Rejection of father (any)	5·3%	9·2%
No outings with parents	42·7%	27·3%

Even in the minority who did have arguments, these were usually infrequent. All critical remarks concerning parents made at any time during the interview were noted, and only about a third of the adolescents made any criticisms at all. Frank rejection of parents was rarer still. Youngsters were asked about family outings and only a third or so reported that they never went out with their parents.

The findings of all the epidemiological studies are in general agreement. Alienation from parents is *not* common in 14-yr-olds, although it is probably more frequent by the late teens. Most young teenagers continue to be influenced by their parents and get on quite well with them. Most adolescents are *not* particularly critical of their parents and very few reject them. On the other hand, although still occurring in only half the group or less, petty disagreements about clothes, hair and going out are reasonably common. Some of these disagreements may get quite heated and many adolescents would like their parents to be less strict. Even so, most continue to share their parents' values on other things and respect the need for restrictions and control.

As these unexciting conclusions are so much at variance with some psychiatric opinion, we need to ask why there is this discrepancy. Figure 1 provides at least a partial answer.

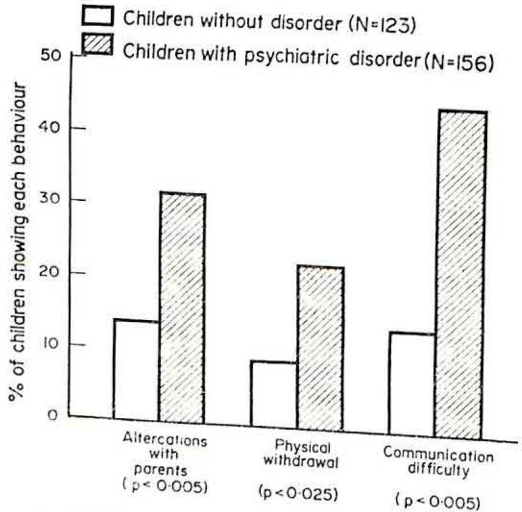

FIG. 1. Parent–child alienation and psychiatric disorder at 14 yr.

This compares altercations, physical withdrawal and communication difficulties in the control group children who showed no psychiatric disorder and the total sample of children with some psychiatric condition. These indications of alienation were two or three times as frequent in the psychiatric group. Thus, opinions based on psychiatric patients are confirmed, in so much as alienation was found to be much more frequent in youngsters with psychiatric problems. Even so, alienation was found in less than half. However, here we have to remember that the Isle of Wight youngsters were not patients and other studies have shown that psychiatric clinic referral is related to stresses in the parent and in parent–child interaction as well as to disorder in the child (Shepherd *et al.*, 1971). In short, alienation is more common in adolescents with psychiatric disorder but also if there is alienation, clinic referral may be more likely other things being equal. In this way, clinic patients may be somewhat unrepresentative of youngsters with psychiatric disorder.

The next question concerns the meaning of the alienation, when it exists. Does it cause psychiatric disorder or is it a result of the child's problems? Before attempting to answer that question let us first consider the prevalence of inner turmoil and of psychiatric disorder in adolescence.

Inner turmoil

The assessment of inner turmoil presents many difficulties and questionnaire surveys are of negligible value in this connection. The Coleman (1961) interviews did not cover this area and the Offer (1969) study is non-contributory in that it excluded all adolescents with difficulties. Masterson (1967) reported that anxiety and depression were as common in ordinary adolescents as in his patient sample, which suggests considerable feelings of distress even in children without psychiatric disorder. That is the only relevant published study. So let us turn straight to the Isle of Wight findings from the psychiatric interview with the adolescent. A sample of results is given on Table 3.

The first four items refer to material reported at interview by the adolescent. Each youngster was asked if he sometimes felt miserable and unhappy to the extent that he was tearful or wanted to get away from it all. Nearly half reported some appreciable misery or depression and this was almost as common in boys as in girls. About a fifth said that they felt that what happened to them was less important than what happened to other people, that they didn't matter very much. Only a small minority admitted to any suicidal thoughts but a quarter said that they sometimes got the feeling that people were looking at them or talking about them or laughing at them.

TABLE 3. FINDINGS FROM PSYCHIATRIC INTERVIEW WITH ADOLESCENT (GENERAL POPULATION SAMPLE)

	Boys ($n = 96$)	Girls ($n = 88$)
Reported misery	41·7%	47·7%
Self-depreciation	19·8%	23·0%
Suicidal ideas	7·3%	7·9%
Ideas of reference	28·1%	30·7%
Observed anxiety	19·8%	28·4%
Observed sadness	12·5%	14·8%

At the end of the interview, the psychiatrist had to note whether the youngster appeared anxious and whether he appeared sad or miserable. Interestingly, the proportion who looked sad was far less than the proportion who reported feelings of misery. Only about one in eight adolescents looked sad or miserable at interview.

The interview data refer to ratings made by psychiatrists on the basis of what the adolescents said to them. Accordingly, it is possible that the high proportion of youngsters said to be miserable and depressed might be due to psychiatrists placing undue weight on phenomena of little depth or meaning to the adolescents themselves. Some check on this is provided by the malaise inventory which is completed by the youngsters without any interpretation by psychiatrists. The findings are shown in Table 4.

TABLE 4. INDIVIDUAL ITEMS ON THE MALAISE INVENTORY (GENERAL POPULATION SAMPLE)

	Boys (n = 96)	Girls (n = 87)	Mothers (n = 170)
Often feels miserable or depressed	20·8%	23·0%	14·3%
Usually has great difficulty in falling asleep or staying asleep	20·8%	17·2%	14·2%
Usually wakes unnecessarily early in the morning	22·9%	24·1%	10·0%

More than a fifth of the boys and girls reported that they felt miserable or depressed, and the same proportion reported great difficulties in sleeping, and waking unnecessarily early in the morning. Although these figures are considerably lower than those from the psychiatric interview, it is striking that they are substantially higher than the equivalent figures for mothers. In short, on the adolescents' own account more of them are depressed or miserable than is the case with their mothers (comparable data for fathers are not available).

There can be no doubt from these findings that many 14–15-yr-olds experience quite marked feelings of affective disturbance which could well be described as "inner turmoil". Although only a small minority appeared clinically depressed, many more reported feelings of misery which were often accompanied by self-depreciation and ideas of reference and occasionally even by suicidal thoughts. Of course, that still leaves half the group who did not experience such inner turmoil. But the findings show that inner experiences of misery and depreciation are very common.

The meaning of these feelings in terms of psychiatric disorder is another question, but before turning to that issue let us consider the prevalence of psychiatric disorder in adolescence.

Prevalence of psychiatric disorder

Apart from the Isle of Wight investigations, the only other studies to examine the prevalence of psychiatric disorder in adolescence are those by Krupinski *et al.* (1967), Henderson *et al.* (1971) and by Leslie (1974). Krupinski and his colleagues used medical students to interview all families in an Australian town in order to determine the prevalence of all forms of medical disability. Diagnoses were checked by supervisors and collateral inquiries were made when thought necessary. Some

10 per cent of children, 16 per cent of adolescents and 24 per cent of adults were diagnosed as showing some form of psychiatric disorder. The findings suggested a rate of disorder which increased during adolescence and early adult life, but as, unlike the other surveys, direct psychiatric assessments were not employed comparisons are problematic. Leslie (1974) examined 13–14-yr-old children in Blackburn, basing her diagnosis on interviews with parents and children and on questionnaires from teachers. The prevalence rate found was 21% in boys and 14% in girls. No comparisons with other age groups are possible from her figures. For this purpose, we need to turn to the Isle of Wight findings.

If we are to compare the rate of disorder at 14–15 yr with the rates at other ages, it is necessary to ensure that comparable methods of assessment are used at each age. In this connection we have data on three age-groups on the Isle of Wight—10-yr-olds, 14–15-yr-olds, and adults (represented by the parents of children in both control groups). The same general strategy was employed in the case of the two groups of children but there were important differences in detail. In the first place, the child interviews were both longer and more thorough at age 14 yr than they had been at 10 yr. In the second place, we had interviews with teachers for the adolescents but only reports from teachers for the 10-yr-olds. Simply on the grounds that our assessments were more searching, we would expect to find more disorder at 14 yr than at 10 yr. With the adults, we had only one source of information—the interview with the mother which had to be used to assess disorder in both parents. In order to equate the methods of assessment as far as possible, only one source of information was used for each age group, in each case the best source available and comparisons were based on the appropriate control groups. The source of information was the parental interview for both groups of youngsters and for adults it was the maternal interview. The results are shown in Table 5.

It is clear that the prevalence of psychiatric disorder is roughly the same at all ages—namely just over 10%. The only group with an appreciably lower rate is that of adult men. In their case the figure may be somewhat of an underestimate because we had to use information from their wives rather than from the men themselves, or it could be truly lower. We have no satisfactory means of testing which is the correct explanation. However, whatever the explanation, the data provide no support for the view that psychiatric disorder is very much commoner during the mid-teens.

TABLE 5. PREVALENCE OF PSYCHIATRIC DISORDER BY AGE (USING MAIN ACCOUNT)

	Ages 10 yr	 14 yr	 Adult (Parent)
Male	12·7% (n = 55)	13·2% (n = 91)	7·6% (n = 250)
Female	10·9% (n = 46)	12·5% (n = 88)	11·9% (n = 270)

In each case *n* refers to the total sample from the general population who were interviewed in order to determine the proportion with psychiatric disorder.

It could be argued that we should have used the interview with the adolescent himself for this purpose. We did not because the evidence suggested that the parental measure was a better indicator of disorder. Nevertheless, we ought to see how this would affect the results. In the control group, 16·3% of adolescents were diagnosed as having psychiatric disorder on this basis. Therefore, on this measure, psychiatric problems were rather commoner in adolescence than they were in adult life. But caution should be used in drawing conclusions from this comparison as the interviews were different. The same applies to the comparison with 10-yr-olds.

Because of these methodological uncertainties, we need to look to other means of comparison. Let us turn to the teachers' questionnaires. We cannot use the teacher interview because it was undertaken only for the adolescents but the questionnaires were closely comparable at the two ages. At age 10–11 yr some 7% of the population obtain deviant scores (Rutter, Tizard and Whitmore, 1970), and at age 14–15 yr just over 6·5% do so. In short, on information from teachers, the rate of emotional and behavioural problems in adolescence is much the same as that at age 10–11 yr.

Another check is provided by scores on the self-completed health questionnaire which taps emotional and psychosomatic symptoms. This was not used with 10-yr-olds but it was with both adolescents and parents, for whom it has been shown to provide a reasonable indicator of psychiatric disorder. Among the 14–15-yr-old girls 17·2% had scores indicative of possible disorder whereas among the mothers 12·2% had similar scores. The comparable figures for boys and fathers were 10·4% and 3·8%. Accordingly, as judged on the basis of self-completed questionnaires, disorders appear rather more common in adolescence than in adult life.

The findings are largely negative so far, but we have used only separate pieces of information. In the original survey, the final estimate of prevalence was based on a two-stage procedure involving the screening of the total population by means of parents' and teachers' questionnaires and then individual diagnoses based on all available data. On this basis, we obtained a prevalence of 5·7% psychiatric disorder at age 10 yr. At 14–15 yr the figure was 7·7%, just a little higher.

Taking all these comparisons together, it may be concluded that psychiatric disorders occur at a fairly similar rate at age 14–15 yr and at age 10–11 yr, although the prevalence is probably rather higher in adolescence. Comparisons with adulthood are less certain as the findings differ according to which data are used. However, it seems that disorders may be somewhat more frequent in adolescence. It should be noted that psychiatric clinic referral rates are appreciably higher in adult life than in adolescence (Baldwin, 1968), although this difference may reflect referral practices rather than prevalence.

So far so good, but in these last comparisons there has been one missing step and it is that step which throws the whole issue into confusion once more. The missing step is the consideration of how many children with psychiatric disorder are missed by the screening procedures. At 14–15 yr, our data suggest that quite a few children are missed (Graham and Rutter, 1973). Indeed, if a correction is made on the basis of children not picked up on the screening procedures, the rate rises greatly—up to 21%. Unfortunately, the information at age 10 yr is not exactly comparable but the available data indicate that the proportion missed is very much smaller and hence the corrected prevalence is considerably lower (Rutter.

Tizard and Whitmore, 1970). As this one comparison runs counter to all the others we need to look very closely at what it means and search diligently for possible methodological artefacts.

The first point is where do all these extra children who missed the screening procedures come from? On which source of data is the psychiatric diagnosis based? The answer is that the single greatest source is the psychiatric interview with the adolescent himself. In fact no less than 28% are diagnosed *on this basis alone,* without supporting evidence from either the parent or teacher. As this picture is quite different to that in the group selected on the screening procedures, we need to consider whether the interview with the child is a valid and trustworthy indicator of psychiatric disorder.

TABLE 6. VALIDITY OF PSYCHIATRIC INTERVIEW WITH ADOLESCENT

	% with disorder on adolescent interview
Control group ($n = 184$)	16·3%
Psychiatric group (diagnosed on basis of information from parents/teachers) ($n = 158$)	48·7%*

* $\chi^2 = 51{\cdot}78$; 1 *d.f.*; $p < 0{\cdot}001$.

Table 6 shows the proportion of adolescents diagnosed as having psychiatric disorder (on the basis of the child interview) in two groups. The first group is the random control group where there was a rate of 16·3% and the second is the group of youngsters diagnosed as having psychiatric condition on the information from parents and teachers, where the rate was 48·7%. This provides convincing validation of the interview with the adolescent as a means of detecting disorder so that serious attention must be paid to its findings.

However, the fact remains that many youngsters who appear normal to parents and teachers are diagnosed as showing disorder on the adolescent interview. Thus, in the random control group *not* selected on either the parent or teacher questionnaire nearly one in five are nevertheless diagnosed as showing psychiatric disorder on the adolescent interview. Nearly all these disorders involved some type of emotional disturbance, often depression; and it was clear that the frequently expressed feelings of misery, self-depreciation and the ideas of reference, already noted when considering "inner turmoil", had been used to diagnose psychiatric disorder. Was this correct? No really satisfactory answer can be given to that question on the basis of existing data. Four points may be made, however. First, the data on impairment of functioning were less searching in the adolescent interview than in the parental interview, so that for this reason alone, less reliance can be placed on the diagnosis, if social impairment is required to be present (which it was on our criteria). Second, whether or not it is considered that they indicate psychiatric disorder, the feelings of affective disturbance were real enough. Regardless of what parents and teachers thought or noticed, the adolescents themselves experienced suffering. Thirdly, the proportion of youngsters who looked sad was much smaller than those who reported feeling miserable. This raises the question of whether the reported feelings meant clinical depression or whether they represented inner turmoil which is part of adolescent development rather than an indication of psychiatric disorder. Fourthly, the best test of the psychiatric meaning of these symptoms would be what happened to the youngsters' mental state over the next year or so after the interview. Did the feelings of misery develop into frank depression or some other disorder noticeable to others, *or did the feelings remain purely internal and not observable by other people?* No data on that point are available either from the Isle of Wight study or from other published investigations, but such a study would be most useful and informative.

In the absence of these data any conclusions about the true prevalence of psychiatric disorder in adolescence must remain rather tentative. However, putting the findings together as well as possible, it seems that overt socially handicapping psychiatric disorder is probably somewhat commoner in adolescence than in earlier childhood (and possibly more frequent than in adult life) but the age differences in prevalence are fairly small. But, in addition to these generally recognizable disorders there is a sizable group of adolescents, perhaps 10% of the general population, who suffer from marked internal feelings of misery and self-depreciation. These feelings are obviously important aspects of adolescence but their clinical significance in terms of overt handicapping disorder remains uncertain at present. In view of this uncertainty, from now on when referring to psychiatric disorder in adolescence attention will be confined to the 7·5% who were diagnosed on the basis of the two-stage procedure which involved both *general* population screening *and* individual interviews with parents, teachers and adolescents.

Types of psychiatric disorder in adolescence

It seems, then, that there is probably a slight rise in the rate of psychiatric disorder during early adolescence, but the increase is only moderate. The next issue is whether the disorders occurring in adolescence differ in *type* from those evident at age 10 yr. For the most part the disorders appear closely similar. At both ages there is the same mixture of emotional disorders and conduct disturbances with very few psychotic children. In fact at age 14 yr there were no clear cases of schizophrenia, although there was one boy with a disorder which might reflect the early signs of this condition. The findings emphase the rarity of psychosis in early adolescence.

However, there were two marked differences from the distribution of disorders at age 10 yr. First, depression was much commoner in adolescence. At 10 yr there were only 3 children with a depressive condition whereas at 14 yr there were 9, plus another 26 with an affective disorder involving both anxiety and depression. This difference indicates the beginning of a shift to an adult pattern of disorders, although there is not yet the marked female preponderance of neurotic disorders seen in adults. As shown by Shaffer's study (1974) this rise in affective disorders during adolescence is paralleled by a rise in the incidence of completed suicide. Secondly, at age 14 yr there were 15 cases of school refusal whereas there had been none at age 10 yr. In many cases the school refusal formed part of a more widespread anxiety state or affective disorder, but, in all, the reluctance to go to school constituted one of the main problems. The findings are in keeping with the clinical evidence that school refusal is most prevalent in early childhood and again in adolescence. In the younger children, the main problem is more in keeping with normal developmental patterns and the prognosis is usually very good. In contrast, school refusal in adolescents is more often part of a widespread psychiatric disorder and the prognosis is considerably worse (Rodriguez *et al.*, 1959). In short, although the psychiatric disorders shown at 14 yr are similar in many respects to those evident at age 10 yr, it is clear that the diagnostic pattern is different with respect to affective disorders and in this respect it is beginning to approximate the adult picture.

New disorders and persistent disorders

We now need to turn to the question we started with, whether disorders arising for the first time in adolescence are in some way different from those arising in earlier childhood, and whether adolescent disorders are due in part to the troubles stemming from inner turmoil or alienation from parents. Let us start with the issue of whether the disorders are different. It will be recalled that, as well as the cross-sectional study at 14 yr, we had had a similar study at age 10 yr on the same children. By linking the two studies we were able to sort out the adolescents' disorders into those which were already evident at age 10 yr and those that began at some point between 10 and 14 yr. Table 7 shows how the group divided up.

TABLE 7. AGE OF ONSET IN ADOLESCENT PSYCHIATRIC DISORDERS

	Before 10 yr	After 10 yr	Total
Boys	43 (69·3%)	53 (56·4%)	96
Girls	19	41	60
Total	62	94	156
Sex ratio	2·3 : 1	1·3 : 1	

$\chi^2 = 2{\cdot}13$; 1 *d.f.*; *N.S.*

There were 48 youngsters who had already shown handicapping psychiatric disorder at age 10 yr. In addition, there were a further 14 who had had deviant scores on the parents' or teachers' questionnaire at the same age, although a handicapping disorder was not diagnosed. These two groups were combined to make a single group of 62 adolescents who were already showing disorder at 10 yr. The remaining 94 children had given no indications of psychiatric problems at 10 yr, so the presumption is that their disorders began some time after that, during early adolescence. (For this comparison, of course, children leaving or coming to the Isle of Wight between 10 and 14 yr have been excluded.)

Thus, just over half the disorders constituted new conditions arising in adolescence and just under half were conditions persisting from earlier childhood. It should be noted that, compared with clinic studies, the proportion of new disorders is unusually high. Both Warren (1965) and Capes *et al.* (1971) found that among adolescent psychiatric patients the majority of disorders had their origins in early or middle childhood. In the Isle of Wight study there was no difference between those with new and those with persistent disorders in terms of the proportion who were seen by a psychiatrist during the last year (the figures were 15·5 and 17·5%). However, there was some difference in terms of those who had ever received psychiatric care, as would be expected on the basis of the duration of disorder. A third

(33·3%) of the persistent group had seen a psychiatrist compared with less than a fifth (19·0%) of the children with new disorders.

Let us now turn to the question of how the two groups of disorders differed. The first difference which is apparent is that there was a marked preponderance of boys among the persistent cases whereas in the new cases the sex ratio was nearer equal. In short, the disorders arising during adolescence are nearer to the adult pattern than those arising in earlier childhood. Interestingly, however, the diagnostic differences were small and statistically insignificant.

TABLE 8. SEVERITY OF PSYCHIATRIC DISORDER BY AGE OF ONSET

	New disorders	Persistent disorders
Mild	59 (62·8%)	32 (51·6%)
Moderate	29 (30·9%)	21 (33·9%)
Severe	6 (6·4%)	9 (14·5%)
Total	94	62

χ^2 for trends = 3·14; 1 *d.f.*; *N.S.*

Before turning to other differences it is necessary to check whether the two groups differed in terms of the severity of the disorder. This is shown in Table 8. There was a slight tendency for the most severe disorders to be found in the persistent group but the differences fell well short of statistical significance and overall the severity ratings were quite similar in the two groups.

In looking for differences between the groups, it is helpful to have some idea of what features differentiate between the children with psychiatric disorder and those without any psychiatric problems. These variables are summarized in the next two tables. First, there are a variety of cognitive or educational factors. As was the case with the younger children showing psychiatric disorder, there was a slight tendency for the psychiatric group to have a lower I.Q., and a marked tendency for them to have severe reading difficulties. They also had significantly lower arithmetic scores.

Again as with the younger children, psychiatric disorder was associated with various indicators of family pathology, such as break-up of the parent's marriage, the child going into care, marital discord, irritability between the parents, parental irritability towards the child, and mental disorder in the mother.

In addition, there were a number of items, not assessed at age 10 yr, which were associated with psychiatric disorder in adolescents. First, most of the items associated with parent–child alienation were more often found in the psychiatric group. More quarrelled with their parents, more showed physical withdrawal, more showed communication difficulties or emotional withdrawal, more of the parents disapproved of the adolescent's friends and fewer of the adolescents went out with their parents. Second, there was also a mixed group of items referring to the youngsters' leisure activities which were associated with psychiatric disorder. The significant items are just a few out of a large number of non-significant differences on leisure activities, so these few should not receive much emphasis.

These items will be used to look for possible differences between the youngsters with new disorders and those with disorders persisting from earlier childhood. Table

10 shows that there was no I.Q. difference, but the children with persistent disorders had much lower arithmetic scores ($t = 4{\cdot}30$; 144 *d.f.*; $p < 0{\cdot}01$).

The difference with respect to reading retardation was even greater, as shown in Table 10 and Figure 2. The children with new disorders had no more reading difficulties than did the general population (3·3 vs 4·1%). This was in marked

TABLE 9. ITEMS DIFFERENTIATING PSYCHIATRIC GROUP FROM CONTROLS

Low I.Q. Low arithmetic score Reading retardation	Cognitive/educational
Not living with natural parents Child been in care Marital discord Parental irritability Maternal psychiatric disorder	Family pathology
Altercations with parents Physical withdrawal Communication difficulties Parental disapproval of friends Does not go out with parents	Parent–child alienation
Goes to coffee bar Meets friends in public places Has paper round Smokes	Other

TABLE 10. FAMILY AND EDUCATIONAL VARIABLES AND TIME OF ONSET OF DISORDER

	New disorders (at age 14 yr) $n = 94$	Persistent disorders (10–14 yr) $n = 62$	Non-persistent disorders (after age 10 yr) $n = 45$
Not living with both natural parents	18·2%	37·3%**	25·5%
Poor marriage	20·8%	30·2%	18·9%
Child been in care	8·3%	32·8%***	8·7%†
Maternal psychiatric disorder	17·6%	30·2%	21·4%
Reading retardation (age 10 yr)	3·3%	14·3%*	11·1%
Reading retardation (age 14 yr)	2·2%	21·4%***	13·3%††
Mean I.Q.	105·0 (*s.d.* = 17·14)	102·0 (*s.d.* = 15·09)	102·3 (*s.d.* = 20·60)
Mean arithmetic score	31·4 (*s.d.* = 11·68)	23·3 (*s.d.* = 10·82)	27·9 (*s.d.* = 13.00)

Differences between new disorders and persistent disorders

* $p < 0{\cdot}05$

** $p < 0{\cdot}025$

*** $p < 0{\cdot}001$.

Differences between persistent disorders and non-persistent disorders

† $p < 0{\cdot}001$ ($\chi^2 = 7{\cdot}28$; 1 *d.f.*).

Differences between new disorders and non-persistent disorders

†† $p = 0{\cdot}015$ (Fisher's Exact test).

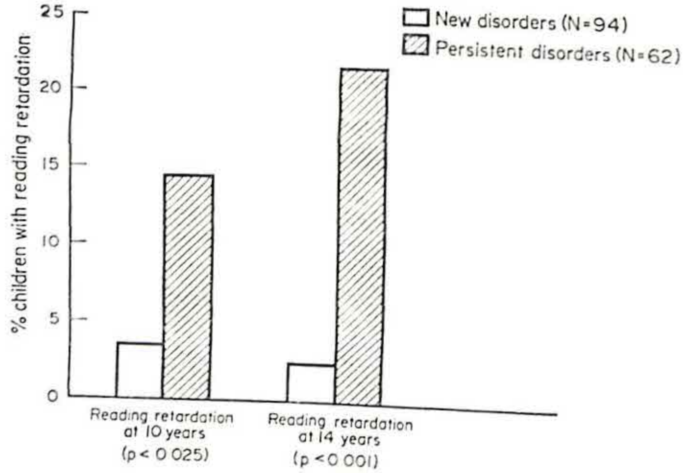

FIG. 2. Reading retardation and time of onset of psychiatric disorder.

contrast to the situation with respect to those with persistent disorders, many of whom (14·3%) were seriously retarded in reading. Interestingly the proportion who showed severe and specific reading retardation was even greater at 14 yr than it had been at age 10 yr. In short, the disorders persisting from earlier childhood were strongly and significantly associated with scholastic problems whereas this was not true at all with the disorders arising *de novo* during adolescence.

Figure 3 and Table 10 show a selection of the family variables associated with psychiatric problems. As is evident, in all cases family difficulties were much more strongly associated with the persistent cases than with the new cases. A third (32·8%) of the children with persistent disorders had been in care compared with only 8·3% of those with new disorders ($\chi^2 = 13{\cdot}76$; 1 *d.f.*; $p < 0{\cdot}001$). Almost two-fifths (37·3%) were not living with their two natural parents compared with less than a quarter (18·2%) of those with new conditions ($\chi^2 = 5{\cdot}77$; 1 *d.f.*; $p < 0{\cdot}025$). Maternal psychiatric disorder, irritability between parents and paternal irritability with the child were all nearly twice as common in the persistent group, although only the last difference reached statistical significance ($\chi^2 = 7{\cdot}49$; 1 *d.f.*; $p < 0{\cdot}01$).

A check was made to see if any of these differences were explicable in terms of diagnostic variation or difference in the severity of disorder. They were not. The differences remained even after the appropriate standardizations had been made.

In summary, as shown in Table 11, whereas persistent disorders at age 14 yr are strongly associated with various indices of family discord, parental difficulty and educational disadvantage (as were disorders at age 10 yr), these associations were much attenuated or non-existent in the case of psychiatric conditions arising for the first time during adolescence. The only association reaching statistical significance was that with marital disharmony.

However, it could be objected that the differences were explicable simply in terms of the different stages in the process of psychiatric disorder. The new disorders were recent whereas the persistent disorders were chronic. It is not possible to determine how far this constitutes an explanation but some check can be provided by a comparison with the 10-yr-old children who had *recovered* before 14 yr, as they,

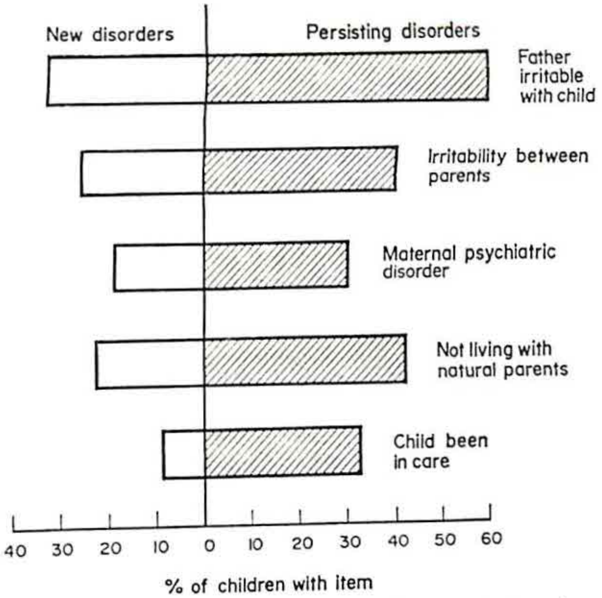

FIG. 3. Family variables and time of onset of disorder.

TABLE 11. FAMILY AND EDUCATIONAL VARIABLES AND DIFFERENCES FROM CONTROL GROUP

	Non-disordered controls (*n* = 123)	New disorders (*n* = 94)	Persistent disorders (*n* = 62)
Not living with both natural parents	14·9%	18·2%	37·3%**
Poor marriage	6·6%	20·8%**	30·2%***
Child been in care	3·3%	8·3%	32·8%
Maternal psychiatric disorder	9·5%	17·6%	30·2%**
Reading retardation (at age 10 yr)	4·1%	3·3%	14·3%*
Reading retardation (at age 14 yr)	3·3%	2·2%	21·4%***
Mean I.Q.	108·51 (*s.d.* = 14·32)	104·98 (*s.d.* = 17·14)	102·02** (*s.d.* = 15·09)
Mean arithmetic score	33·9 (*s.d.* = 11·24)	31·4 (*s.d.* = 11·68)	23·2*** (*s.d.* = 10·82)

Differences from controls
* $p < 0{\cdot}025$
** $p < 0{\cdot}01$
*** $p < 0{\cdot}001$.

too, constituted a group with relatively acute conditions. This comparison is complicated by the fact that the non-persistent disorders from age 10 yr differ somewhat in diagnosis from both the other groups, in being predominantly neurotic conditions. Accordingly, on these grounds alone a lesser association with family and educational variables would be expected. Nevertheless, the findings should be examined.

It is apparent from Table 10 that whereas reading retardation was associated with *both* the non-persistent and persistent disorders from age 10 yr, it was not associated with the disorders arising in adolescence. It may be firmly concluded that this is a difference associated with age of onset rather than with chronicity. However, the reverse is true with family variables. After controlling statistically for diagnostic differences between groups it was evident that the non-persistent group was closely similar to the new group in terms of family difficulties. Gross family pathology is mainly associated with chronic psychiatric disorders, but marital discord at parent–child alienation (see below) is found with both acute and chronic conditions.

Alienation and adolescent psychiatric disorder

We now need to turn to the possible importance of alienation from parents in the genesis of psychiatric disorder in adolescence. We have already seen that all the various measures of alienation are significantly associated with psychiatric problems. Altercations with parents, physical withdrawal and emotional withdrawal were all twice as common in the psychiatric group. But the question is: does alienation lead to disorder or does disorder lead to alienation? In order to answer that question we need to compare the disorders arising *de novo* in adolescence with those persisting from age 10 yr. The findings are shown in Table 12.

TABLE 12. PARENT–CHILD ALIENATION AND TIME OF ONSET OF DISORDER

	New disorders ($n = 94$)	Persistent disorders ($n = 62$)
Parental account		
Altercation with parents	28·0%	43·4%
Physical withdrawal	19·3%	29·1%
Emotional withdrawal	43·4%	43·6%
Child's account		
Altercation with parents	35·6%	41·8%
Rejection of mother	2·2%	8·2%
Rejection of father	9·0%	8·6%

No differences are statistically significant.

Alienation was found to be associated with *both* types of disorder, but on the whole it was somewhat more evident in the persistent group even after controlling for differences in the severity of disorder (although the differences fall short of statistical significance). At least in that group, alienation *arising in adolescence* could not have caused psychiatric disorder because the disorder long antedated the adolescent period. Either the association was the other way round, that is the alienation was part of or the *result*, not the cause, of psychiatric problems, or the alienation must have acted as a stress in the pre-adolescent years. Unfortunately the direction of association cannot be conclusively determined in the new group as we had no measure of alienation at age 10 yr. However, two findings militate *against* alienation arising during adolescence being a major causal factor. The first is that most parents said that the alienation began when the child was much younger; only in a very few cases did alienation increase during adolescence. Secondly, the finding that alienation was, if anything, more strong in the persistent disorders argues against alienation being a special causal factor in the new group.

It may be that alienation from parents in earlier childhood predisposes the child to later disorder or it may be that the disorder leads to alienation, or both may be true. Nevertheless, it should not be assumed that the observed association between alienation and psychiatric disorder has the same meaning in the new disorders as it does in those persisting from early or middle childhood.

In the persistent group alienation probably stemmed from the psychiatric disorder in many cases. These children tended to come from disturbed homes in which parents showed psychiatric disorder, or there was severe marital discord, or the family had split up, and often the children had had periods "in care" as a result of the family difficulties. It seems that when marital discord is associated with gross family pathology, psychiatric disorder (if it occurs) is likely to develop in the children well before adolescence. In these cases alienation is probably just part of the general family disturbance.

The new disorders, in contrast, occurred in children from more stable families, although marital discord and alienation were also often present. As far as could be judged from parental reports, the alienation frequently began in earlier childhood *before* the onset of psychiatric disorder. In these cases alienation might well be a causal factor. The findings are in keeping with the hypothesis that deviant relationships and impaired communication patterns (i.e. alienation in the setting of marital discord) in families without severe disturbance may be factors in the development of psychiatric problems which do not become overt until the early or middle teens. On the other hand, our evidence suggests that alienation *arising for the first time* is *not* a common causal factor in either psychiatric group.

Does the same thing apply to "inner turmoil"? The findings are that misery, self-depreciation, suicidal ideas and ideas of reference occur with just the same frequency in the persistent disorders as in the new disorders. In short, if these are taken as reflections of "inner turmoil", "inner turmoil" is *no* more frequent in the children whose disorders have arisen *de novo* during adolescence.

The transience or persistence of adolescent disorders

Before attempting to summarize the findings, there is just one other set of data we have to consider and that refers to the prognosis of adolescent psychiatric conditions. An essential element in the concept of adolescent disorders, as a result of turmoil and alienation, is the supposition that the problems are variable in symptomatology, transient and benign. Is this borne out by the results of follow-up studies? We have no follow-up data on the Isle of Wight youngsters but data are available from several other studies such as those by Annesley (1961), Warren (1965), Masterson (1967) and Capes *et al.* (1971). As the findings from each are so closely similar they can be discussed together.

First, the question of symptom fluctuation. All the studies have shown that most disorders remain true to type and that symptom fluctuation is not a common feature. There is *no* reason to suppose that symptoms are more variable in adolescence than at any other age.

Secondly, the prognosis for adolescent psychiatric disorders does not appear to be any different (neither better or worse) from that for similar disorders in earlier childhood.

Thirdly, the prognosis varies markedly according to diagnosis. Psychoses have the worst outcome, neurotic conditions the best, with conduct disorders intermediate. This pattern is the same as that found in younger children.

These conclusions apply to the group of adolescent psychiatric disorders as a whole and not just to those whose problems arose *de novo* during adolescence. The evidence is not decisive but, so far as it goes, it suggests that their outlook is no different from the other. Warren (1965) found that the age of onset of the disorder did not influence the prognosis one way or the other. Capes *et al.* (1971) found that the prognosis was better for those whose first five years of life were reasonably trouble-free, but as nearly all of these had emotional disorders a good prognosis would have been expected on the basis of diagnosis alone. Neither Annesley (1961) nor Masterson (1967) presented their findings in a way which allows this comparison.

Generality of findings

The findings from the Isle of Wight study apply to 14–15-yr-old adolescents living in an area of small towns and villages. Whether the same apply to teenagers living in metropolitan or city areas remains uncertain. The level of psychiatric disorder among 10-yr-olds living in inner London is well above that found in Isle of Wight children of the same age (Rutter, 1973) and the same may be true at 14–15 yr. Nevertheless, the limited evidence from other investigations suggests that the *pattern* of findings from the present study may well be fairly general. Doubtless, the extent of parent–child alienation and the frequency of adolescent depression are influenced by socio-cultural factors, but how much so remains to be determined. It is also not known how far the pattern at age 18–19 yr differs from that in mid-adolescence. It is highly likely, however, that the situation will be much influenced by whether the young people are working and financially independent or whether they continue as students and remain dependent on their families.

CONCLUSIONS

The first conclusion is that although parent–child disagreements over items such as dress and hair length are fairly frequent, parent–child alienation is not a common feature at age 14 yr, unless the youngster is already showing psychiatric problems and even then it is present in only about half the group. We have no data concerning alienation during later adolescence but the findings from other studies suggest that it increases somewhat during the late teens but still remains a phenomenon confined to a minority, although possibly a substantial minority. The evidence is meagre and inconclusive but it may be that alienation and rebellion are most evident in those teenagers who, in spite of considerable maturity, remain economically or otherwise dependent on their parents (as would often be the case with respect to those in higher education).

Secondly, parents continue to have a substantial influence on their children right through adolescence. It is certainly true that peer group influences increase markedly during the teen-age period, but except in a minority of youngsters, they do *not* replace parental influences, although they sometimes rival them.

Thirdly, "inner turmoil" as represented by feelings of misery, self-depreciation and ideas of reference are quite common in 14-yr-olds. These feelings cause appreciable personal suffering but often they are unnoticed by adults. It remains uncertain how far these feelings constitute indicators or portents of psychiatric disorder.

Fourthly, psychiatric conditions are probably a little commoner during adolescence than during middle childhood but the difference is not a very great one and most adolescents do *not* show psychiatric disorder. On the other hand, the *pattern* of disorders shows a substantial shift in terms of the increased prevalence of both depression and school refusal.

Fifthly, many adolescent psychiatric problems arise in early childhood so that if prevention is to be attempted it must take place long before the child reaches his teens.

Sixthly, parent–child alienation arising in adolescence is probably not a very common *cause* of psychiatric disorder, in adolescence, although it is commonly *associated* with disorder. Alienation arising in earlier childhood, however, may be aetiologically important.

Seventhly, conditions arising for the first time during adolescence differ in certain important respects from those which persist from earlier childhood. The new conditions are more commonly found in girls, they are *un*associated with educational difficulties, and adverse family factors are less often found than in the early onset conditions.

Lastly, the prognosis for adolescent psychiatric disorders seems to be much more dependent upon diagnosis than upon the age of onset. Although the evidence is limited, there is no indication that disorders arising in adolescence have any different prognosis from those which arise in younger children.

Adolescent turmoil is a fact, not a fiction, but its psychiatric importance has probably been over-estimated in the past. Certainly it would be most *unwise* to assume that adolescents will "grow out" of their problems to a greater extent than do younger children.

SUMMARY

The concept of adolescent turmoil is considered in the context of findings from a total population epidemiological study of Isle of Wight 14–15-yr-olds. It is concluded that parent–child alienation is not a common feature unless the adolescents are already showing psychiatric problems. Inner turmoil, however, as represented by feelings of misery and self-depreciation is quite frequent. Psychiatric conditions are only slightly commoner during adolescence than in middle childhood but the pattern of disorders changes in terms of an increase in depression and school refusal. Many adolescent psychiatric problems arise in early childhood but conditions arising for the first time during adolescence differ in important respect from those with an earlier onset.

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EYEBROW-RAISING, EYE WIDENING AND VISUAL SEARCH IN NURSERY SCHOOL CHILDREN

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INTRODUCTION

BLURTON-JONES and KONNER (1971) have shown that eyebrow-raising may easily be elicited in preschool children by the sudden occurrence of a loud buzzing from a hidden clock. Arguing from Andrew's theory (1963a, b), which suggests that primate facial expressions are basically functional, they speculated that "there would be non-social (or non-face-to-face) situations which would evoke brow-raising, and that its non-social function would be present and apparent in the social contexts in which it occurs".

To test this theory, they designed an experiment to determine whether searching evokes brow-raising, following Darwin's (1872) theory that the origin of brow-raising lies in searching behaviour.

"The raising of the eyebrows is necessary in order that the eyes should be opened quickly and widely. . . . As surprise is excited by something unexpected or unknown, we naturally desire, when startled, to perceive the cause as quickly as possible; and we consequently open our eyes fully, so that the field of vision may be increased, and the eyeballs moved easily in any direction."

Darwin goes on to say that in order to open the eyes quickly the "eyebrows must be lifted energetically" and that once this functional use of brow-raising is established, "the movement would follow from the force of association whenever astonishment was felt from any cause, even from a sudden sound or an idea."

Blurton-Jones and Konner demonstrated that brow-raising was considerably more common in a situation where a hidden clock began to buzz than when the same clock buzzed in full view of the children. The former condition was designed to elicit visual searching including head turning and neck stretching, whereas the control condition was not. They showed that their findings were consistent even when allowing for several methodological flaws.

We considered that the experimental paradigm of Blurton-Jones and Konner would serve as the first step in a series of experiments on the production of facial expression in mentally handicapped children—a relatively neglected area. Unsystematic observations of subnormal children had suggested that their facial expressions changed minimally and that their production of non-verbal cues appeared to be limited (Mittler *et al.*, 1974). We chose eyebrow-raising initially as a relatively simple and common aspect of facial expression which Blurton-Jones and Konner had suggested was "one of the most reliable categories in working from still photographs, and it was even easier to identify on film".

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For the purpose of direct comparison, a group of normal nursery school children were initially tested in an attempt to repeat Blurton-Jones and Konner's findings within a modified experimental paradigm. The present paper reports our findings on this sample of normal children.

METHOD

Subjects

The subjects were 33 3–5-yr-old normal children attending a nursery school in Manchester. The sample consisted of 18 girls and 15 boys initially, but one girl had to be omitted from the analyses as her long fringe precluded analysis of her brow-raising behaviour.

Procedure

The procedure adopted was comparable to that employed by Blurton-Jones and Konner except that our experimental condition had aspects in common with both their "Hidden" and "In View" conditions. In order to demonstrate differences in procedure, it is necessary to summarise that used by Blurton-Jones and Konner.

(a) Their two conditions consisted of "In View" where the buzzing clock was in full view near the children but varied in its location, and "Hidden" where the clock was hidden behind an object in the room. The clock's position varied in distance away from the children in both conditions (between 2 and 8 ft).

(b) Both situations were presented during a "story time" period with four to six children seated together half-facing the clock and directly facing the teacher with a one-way screen concealing a movie camera. The children saw the experimenter place the clock before each test and could see where he had put it when "In View" and sometimes remembered its location in the "Hidden" condition. Blurton-Jones and Konner claim that this would reduce the difference between the conditions and work against their experimental hypothesis.

(c) The order of presentation of the two situations was not consistently alternated due to technical difficulties. Each child was tested at least once under both conditions and some were tested several times. These design problems were allowed for in their analyses.

(d) Filming (presumably without sound) commenced just before the onset of the buzzer which was signalled on the film by a pencil flashing past the lens. Filming continued for the duration of the buzzing (30 sec). A zoom lens enabled the faces of all the children to be kept in view simultaneously.

(e) Analysis was by repeated examination on a motion analysis projector at live and slow speeds and, on occasion, frame by frame. Two separate analyses by the two experimenters showed good agreement in rating the occurrence of eyebrow-raising.

Our own procedure followed a similar pattern but included several refinements on the basis of the problems reported by Blurton-Jones and Konner and our own pilot studies.

(a) Two conditions were employed but the first was only a control to allow baseline analysis. The experimental condition involved the activation of a loud cycle horn. The horn was attached to the camera tripod directly in front of the children but was completely concealed by the camera. The distance and position of the horn in relation to the children was constant throughout (approx. 7 ft).

(b) Both conditions were presented in a "story time" situation with the control followed by the experimental condition on every occasion. The children were tested in 11 groups of three. We found that recording more than three children at a time presented problems in terms of the facial detail we were able to record. The children were seated in an arc in front of their class teacher who introduced them to the situation as follows:

"This is Mr. E. He wants to take some pictures of you listening to a story with me. Now settle down and we can begin the story. Listen carefully . . . (story) . . ."

CCTV videotape recording equipment was used in this study rather than film, which our pilot studies had shown to be unnecessarily troublesome. This also allowed a perfectly synchronised sound recording. The camera (including the horn) was positioned directly behind and slightly above the teacher's head which gave a direct view of the children's faces looking up at the teacher.

In the present study the recording equipment and the experimenters were not hidden, as no one-way screen was available in the nursery school. Also, the children did not see the experimenter place or draw attention to the horn so that when it sounded it was a complete surprise and should, therefore, have worked in favour of the hypothesis regarding the elicitation of brow-raising. A further modification, which was probably the most critical, was that the children did not have to look round to localise the sound as it was already in front of their eyes. Pilot studies had shown that positioning the horn forward but to the extreme right of the subjects led to immediate localisation of the noise, their faces turning away from the camera's view, thus precluding analysis of their facial expressions. Hence, we were reducing the need for vigorous searching (i.e. head turning), but increasing the surprise element.

(c) Each child was tested once only under both conditions during the same testing. In the control condition the child was unaware of any change in the situation.

(d) After the teacher had seated herself and the children and had just started her story, the experimenters activated the timer and VTR simultaneously. The camera was aligned and focussed beforehand. The whole process was then automatic.

The seating arrangements were contrived to give an optimal TV picture, so that the children's faces, the back of the teacher's head and the information board and alerting light were all clearly visible. The information board identified the different groups of subjects. The alerting light signalled the occurrence of the control and experimental conditions within the sequence and provided a visual signal of the onset of the buzzer when playing back the tape without sound.

The experimental sequence lasted for one minute exactly and was controlled automatically by the timer. The camera ran throughout. The sequence was as follows:

	Seconds	
	0	Activation (camera and timer)
		10 sec delay
Control condition	10	Alerting light 1 for 5 sec (baseline analysis)
	15	
		30 sec delay
Experimental condition	45	Alerting light 2 for 5 sec Horn for 5 sec (analysis of surprise)
	50	
		9 sec delay
	59	Alerting light 3 on for 1 sec (end of sequence)
	60	Stop.

(e) Analysis of eyebrow-raising was by repeated examination of the videotape by one of us (KW) at live and slow speeds and also by stopping the tape to "freeze" the scene at critical moments. Subsequent analysis was carried out by three trainee clinical psychologists (J, L and G), with training in observational techniques, who viewed the tape with and without sound. They were instructed to observe the children for incidence of eye widening in the two conditions when the light went on. They were also asked to report any occurrence of actual brow-raising. J, who had acted as research assistant in this study, initially viewed the tape without sound but knew that the second light signalled the onset of the horn. She subsequently viewed the tape with sound (J'). L and G were not aware of the function of the second light and viewed the tape independently, the former with sound and the latter without sound.

RESULTS

No occurrence of eyebrow-raising or searching behaviour was apparent in any of the 32 children in either of the two conditions, as judged by KW. This was confirmed by the three raters.

There was, however, evidence to suggest the occurrence of eye widening without brow-raising. In order to preclude experimenter bias, the analyses of this behaviour were carried out independently by the three raters.

TABLE 1. NUMBER OF CHILDREN SHOWING EYE WIDENING IN CONTROL AND EXPERIMENTAL CONDITIONS ($N = 32$)

		No sound		Sound	
	Rater:	G	J	J'	L
Control	Widening	3	4	4	5
	No widening	29	28	28	27
Experimental	Widening	13	18	23	24
	No widening	19	14	9	8

Inter-rater reliability was examined for the control and experimental conditions. In the control condition, rater agreement was high, probably due to the few occurrences of eye widening ($Q = 0{\cdot}71$, $p > 0{\cdot}05$, Cochran Q test). In the experimental condition there was some disagreement between raters, but this was not significant ($Q = 5{\cdot}70$, $p > 0{\cdot}05$).

It appears from this that eye widening is not a manifestly observable response compared with brow-raising as found by Blurton-Jones and Konner. Examination of the data suggests that the disagreement was mainly a function of whether the tape was viewed with or without sound. It appears that the problem is one of demand characteristics, the sound of the horn possibly inducing an expectancy effect as the number of judged eye widenings is higher in the with-sound observation condition. The effect of rater J knowing the nature of the experiment was apparently minimal, as she appeared to be more influenced by the conditions of viewing, in line with the judgements made by the two naïve raters.

Due to the reduced inter-rater reliability in the experimental condition, a stringent response criterion was adopted, i.e. that three of the four raters must agree that eye widening occurred for it to be accepted as reliable (75 per cent criterion). As an added precaution, a four out of four criterion was also examined (100 per cent criterion). Results are summarised in Table 2.

TABLE 2. INCIDENCE OF EYE WIDENING AS A FUNCTION OF 75 AND 100 PER CENT RATER AGREEMENT

	Widening	No widening	Criterion
Control	1	31	75%
Experimental	17	15	
Control	0	32	100%
Experimental	10	22	

On the first (75 per cent) criterion, 17 of the 32 children displayed eye widening behaviour in the experimental condition as compared with only one in the control condition. Comparable figures for the 100 per cent criterion were 10 and 0. Both results are highly significant ($\chi^2 = 14{\cdot}06$, $p < 0{\cdot}001$; $8{\cdot}1$, $p < 0{\cdot}01$, McNemar test for the significance of changes also confirmed by the Sign Test).

These results show that the children displayed a significant tendency to change their eye widening behaviour from virtually none in the control condition to 53 per cent occurrence (100 per cent criterion, 31 per cent occurrence) in the presence of a sudden, loud noise.

The results were further examined for the effects of sex and age but neither exerted a significant effect.

DISCUSSION

Our initial reaction to the results of this experiment was to regard it as a "failure to replicate" leading to the decision to terminate it before including groups of subnormal children in the study. However, a re-evaluation of our modified experimental paradigm, together with the re-analysis of the tapes in terms of eye widening, suggests that our findings are in part predictable from and confirm the results of Blurton-Jones and Konner. In modifying the design of their experiment, we had eliminated their main effect.

In order to retain the children's faces in view, we had hidden the source of the noise whilst keeping it directly in front of them. Thus, although we had a "Hidden" as against an "In View" condition, and the children's attention had not been drawn to the horn, localisation of the noise did not require any really vigorous searching as it was immediately in view and easily localised. Blurton-Jones and Konner concluded that "the contribution of the element of surprise is incomparably smaller than that of visual searching to the elicitation of brow-raising". The results of this experiment are, therefore, in line with their theory and confirm that a sudden, hidden noise is not enough for brow-raising to be elicited; it must also be out of immediate vision requiring considerable visual search prior to location.

The present study has shown that between 31 and 53 per cent of the children tested widened their eyes in response to the sounding of the horn in the experimental condition, when very stringent criteria for the accepted occurrence of eye widening were demanded. The incidence of eye widening was not affected by sex or by age insofar as 3–4-yr-olds exhibited the behaviour as frequently as 4–5-yr-olds. Blurton-Jones and Konner make no mention of the phenomenon of "eye widening" but it would be interesting to know if the children in the "In View" condition of their experiment widened their eyes even though they did not often brow-raise. It is noted, however, that children in both their conditions exhibited a "behavioural alerting effect that included a sharp turn of the head away from the previous source of attention and often a straightening of the back". In the "In View" condition this was followed by gazing at the clock, whereas in the "Hidden" condition searching and brow-raising occurred. They speculate that this may be related to Pavlov's (1927) "orienting reflex". Blurton-Jones (personal communication) has since indicated that the "alerting effect" would include eye widening.

Blurton-Jones has also raised several important points regarding the sound stimulus. He points out that different tones of buzzers/horns may differ in terms of localisability. They may also elicit different responses. Similarly, the duration of the sound stimulus in the present study was only 5 sec as against 30 sec in the original study. It has been pointed out that this may have had the effect of eliciting less prolonged and intense searching, resulting in eye widening but no brow-raising.

We would argue that searching would not necessarily cease when the sound stimulus stopped, and emphasize that, in our study, there was no manifest evidence of any gross searching behaviour apart from eye widening, if indeed this is part of searching behaviour. Finally, the horn was attached to the camera in the present study, possibly the obvious place to look, again precluding the need to search and, hence, no brow-raising was elicited.

Returning to Darwin whose theory was quoted in the introduction, we note that brow-raising occurs as a result of opening the eyes more fully in order that the "field of vision may be increased and the eyeballs moved easily in any direction". It seems then that eye widening may be on a continuum with brow-raising. When a sudden unexpected event occurs—in this case a loud noise—we aim to establish its source as soon as possible and thus begin opening our eyes more fully to facilitate our search strategy. If we quickly establish the source, there is little need to improve our searching strategies further, and so although the eyes initially widen, further widening is not required and hence neither is brow-raising. This explains eye widening to the sudden but immediately located source of surprise in this experiment and brow-raising in the original study which required greater visual searching to establish the location.

Further studies could determine the relationship between eye widening and eyebrow raising by systematically varying the placement of the horn. We now plan to repeat the experiment with groups of mentally handicapped children of similar chronological age and/or level of development.

SUMMARY

Small groups of nursery school children were videotaped listening to a story during the course of which they were exposed to the sound of a loud horn hidden from view. It was hypothesised that this would elicit eyebrow-raising but this was not confirmed. However, a number of children displayed an eye widening response. The results are interpreted in terms of previous research and theory regarding the function of brow-raising/eye widening in terms of searching behaviour.

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THE VISUAL PREFERENCES OF CHILDREN*

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INTRODUCTION

IN STUDIES of children's attention it is often tacitly assumed that attention and preference are isomorphic. In other words, when children and infants look at one pattern longer than another, it is assumed that that pattern is also preferred (Munsinger and Weir, 1967; Cohen, 1969; Karmel, 1969; Stevenson and Lynn, 1971). In many cases this may be so but *a priori* this assumption seems unjustified. Moreover, to confuse such logically distinct phenomena would be to obscure some significant transitions in the development of aesthetic preferences.

From a very early age (a few weeks of life) infants attend differentially to patterns varying in attributes like complexity or incongruity. They can however, express no preference. Even when they are able to express a preference, at the age of 3–4 yr, they do so unreliably and idiosyncratically (Aitken and Hutt, 1974 a, b). For instance, they might well indicate preference for one trinket of a pair and a few minutes later reject it because its position had changed. This type of response occurs because the children react to what is perceptually salient (see, for instance, Wetherick and Davies, 1972).

It is only after the age of 5 yr that children manifest a consistent and reliable preference for certain attributes of visual stimuli. But when they first do so, preferences appear to be curiously dependent upon the attention-value of the stimuli, particularly where nonsense figures or geometrical designs are concerned (Hutt and McGrew, 1969). Later on, after about the age of 10 yr, children begin to distinguish between patterns they find *interesting* and those they find *pleasing*, much in the way that adults do (Aitken and Hutt, 1974a; Day, 1967). Adults distinguish between these two dimensions by saying that interesting patterns are those they can look at repeatedly without being bored, whereas pleasing patterns are those they can live with and which they find more restful (Aitken, 1974). Evaluations of interest are more closely associated with measures of attention than are those of pleasingness (Berlyne, 1963; Day, 1968; Wohlwill, 1968). Thus, while visual attention appears to reflect primarily cognitive dimensions, preference may reflect affective ones.

To account for these transitions, we have suggested that, in the development of aesthetic preferences there is an initial stage during which children have little basis upon which to form their preferences, other than the attention-value of the designs or objects (Aitken and Hutt, 1974a). In other words, those stimuli which hold their attention most are also the ones that are said to be liked best. Subsequently however, with increasing linguistic and conceptual sophistication as well as evaluative ex-

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perience they are likely to be able to make preferential judgements on a variety of bases and thereupon will cease to demonstrate the close association between measures of preference and those of attention. We tested this hypothesis with 5- and 7-yr-old children. Moreover, since it is unclear how much of the early interdependence of attention and preference is determined by stimuli that are difficult to construe meaningfully (e.g. randomly generated polygons) we used three different types of picture. Would children distinguish more readily between their attention to and preference for different patterns if these were meaningful, and how would the "pleasantness" or "unpleasantness" of the pictures affect these response measures?

METHOD

Stimuli

The stimuli used were all coloured illustrations (6 × 4 in.) mounted on white card (7 × 5 in.) and were of 3 kinds: *A*—cartoon or representational illustrations which may be regarded as *nice*; *B*—abstract designs taken from the *Observer Colour Magazine* (20 March, 1972) and of *neutral* affect; *C*—pictures which were thought to be frightening, unpleasant or *nasty* (e.g. a devil-dancer, a votary with nails piercing his flesh, a leper, etc.). There were 6 pictures of each category and the 18 pictures formed 6 *ABC* triads, the pictures in each triad being roughly comparable in colour and complexity.

Subjects

Twelve 5-yr-olds (mean age 5 yr 7 months) and 12 7-yr-olds (mean age 7 yr 6 months) formed the two age groups. The children were all from one infant school in the area.

Procedure

Each child was told that he would be shown 3 pictures at a time, that he could look at the pictures for as long as he wished and when he had finished he was to indicate this by looking up. The pictures were placed before the child in a triangular arrangement on an inclined lectern. From the other side of the lectern the experimenter monitored the child's eye movements, recording these on the appropriate channels of a 4-channel Rustrak event-recorder. The order of the 6 triads was randomised for each subject and the positions of the pictures within a triad changed in a counterbalanced manner.

After the child had looked at all 6 triads, these were presented again and the child asked which picture he liked most/best, which next and so on, so that an order of preference was obtained for each triad.

RESULTS

The average viewing times of the pictures in terms of 1st, 2nd and 3rd preference are shown in Fig. 1. It is clear that attention and preference are much more closely associated in the younger group where attention decreases linearly with preference. Contingency coefficients, calculated after χ^2 analyses, between preference and duration of viewing, were 0·33 ($p > 0{\cdot}001$) and 0·24 ($p > 0{\cdot}01$) for the younger and older groups respectively, indicating that attention and preference became less interdependent with increasing age.

An examination of the effect of the type of picture upon attention and preference yielded unexpected results (see Fig. 2). The preference scores were obtained by giving the 1st preference within a triad a score of 3, the 2nd preference a score of 2 and the 3rd a score of 1. Children of both ages attended more to the Nasty pictures than to the Neutral designs, the order of mean viewing-time being Nice > Nasty > Neutral. Even more surprising was the fact that the preferences of the younger children were also in accord with this attention sequence, which led to a greater

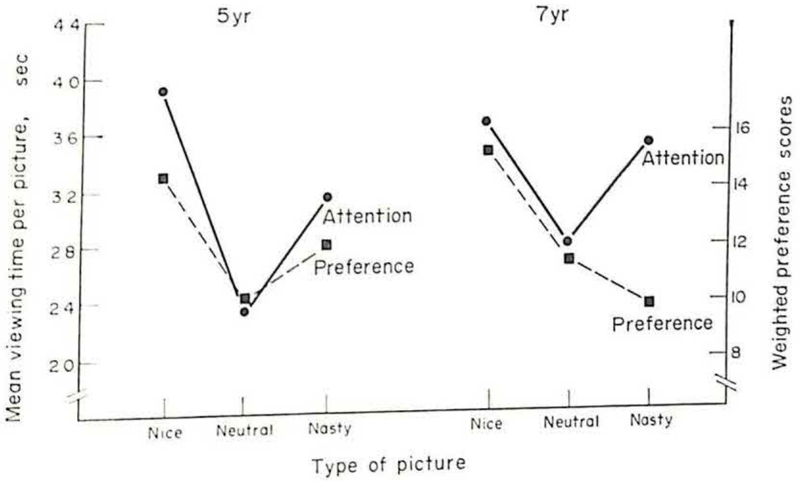

FIG. 1. Children's viewing time of pictures presented in triads according to their order of preference within the triads.

"preference" for the somewhat gruesome pictures over the abstract designs. The significance of the differences (Wilcoxon matched-pairs signed-ranks test) is given below:

		Nice vs Nasty	Nice vs Neutral	Nasty vs Neutral
5 yr	Attention	$p = 0{\cdot}05$	$p < 0{\cdot}02$	$p < 0{\cdot}02$
	Preference	$p < 0{\cdot}01$	$p < 0{\cdot}01$	$p = 0{\cdot}05$
7-yr	Attention	*N.S.*	$p < 0{\cdot}01$	$p < 0{\cdot}01$
	Preference	$p < 0{\cdot}01$	$p < 0{\cdot}02$	*N.S.*

DISCUSSION

These findings demonstrate rather well the dependence of preference in young children upon the attention-value of the stimuli rather than upon their affective content. In the older subjects, on the other hand, the nature of the material viewed was more effective in determining preference, the order of preference being Nice > Neutral > Nasty.

It may, of course, be argued that although adults found the nasty pictures unpleasant, the children, and particularly the younger ones may not have done so, and hence the preferences. There are 2 rebuttals of this interpretation: firstly, some from *both* groups of children gave indications, by exclamation or by grimace, that they found certain of the Nasty pictures "unpleasant"; secondly, this interpretation assumes that pictures that are liked cannot look unpleasant—an assumption which begs the question.

What these results do in fact is to question how words such as "like" and "prefer" are used and interpreted by young children. It may be recalled that Donaldson and Balfour (1968) found that most children under 5 yr could not differentiate the word *less* from the word *more*. Donaldson and Wales (1970) also found that children could

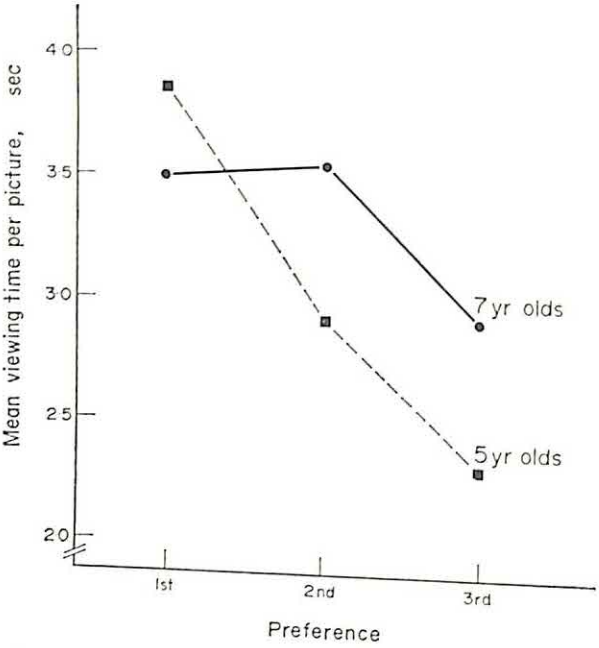

FIG. 2. Relationship between viewing times and preference scores for three types of picture.

not distinguish *same* from *different*—both terms meant "same" to them. Clark (1971) observed that children of this age also had difficulty in correctly using the antonyms *before* and *after*, while Chomsky (1969) found that children under 8 yr interpreted *ask* and *tell* alike. Clark (1973) interprets these confusions as the result of overextension, "where overextension entails that the lexical entry for the meaning of a word in the child's vocabulary is incomplete" (p. 101). Clark argues that since learning to attach meanings to words involves interpreting and coding perceptual data, these perceptual features themselves may well belong to the "universal set of semantic primitives". In other words, the earliest semantic features are derived from perceptual data.

Thus, in using the term "like" to describe visually presented material, children most probably are influenced by perceptually salient features of the material (e.g. contours, edges, etc.), and where no structure or organisation can be readily imposed, as with randomly generated polygons or other abstract designs, such features determine what is "liked". Since these features also determine visual fixation, attention and preference will be isomorphic in such circumstances. However, when organised or meaningful material is presented the nature of what is salient changes, since the development of perception proceeds from contours and edges to differentiated features to structural relations and patterns (Gibson, 1969). So we find that even our 5-yr-old children fixated longer upon those pictures which could be construed meaningfully, irrespective of their affective content, than upon the abstract designs, colourful and attractive though they were judged to be by adults.

Clark's (*op. cit*) Semantic Feature Hypothesis proposes that children learn the meanings of words gradually "by adding more and more features to their lexical entries" (p. 109). Thus, the next stage in the acquisition of this knowledge concerns learning about which specific properties of objects a term describes, under what conditions it can be used, and so on. The knowledge and experience of the young child is still insufficient to enable him to differentiate "like" from other contextually similar functions, so that the 5-yr-olds treat "like" and "look at" similarly in these circumstances. By the age of 7–7½ yr, however, he is able to differentiate the two roles appropriately.

As Clark concludes, we cannot take for granted what children say, but by the same token we cannot take for granted that what is unpleasant or attractive to adults is also so to children. What this study illustrates is how intimately interrelated are the developmental processes of perception, attention, language and for that matter, cognition. Thus attention and preference, though initially isomorphic, ultimately characterise more distinctly articulated psychological domains.

SUMMARY

Five-yr-old children were found to "like" most those pictures which they looked at most while this association was considerably weaker in 7-yr-olds. Both groups of children looked longer at meaningful stimuli, whether Nice or Nasty, than at abstract designs, and the preferences of the younger children followed this trend whereas the preferences of the older children were in the order Nice > Neutral > Nasty. The interpretation of the results illustrated the interdependence of the developmental processes of attention, preference and semantics.

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AN EXPLORATORY STUDY OF DEVELOPMENTAL CHANGES IN CHILDREN'S FEARS

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Past investigations of children's fears focused primarily on conditions surrounding the development of fear of failure in competitive situations such as those found in school (Hill, 1971). Except for clinical studies of abnormal fears conducted within a psychoanalytic conceptual framework (Rheingold, 1967) and laboratory investigations of conditioned emotional responses, only a small number of investigations have been carried out in the last four decades in which structure and developmental sequence in children's fears were analyzed (e.g. Angelino *et al.*, 1956; Jersild *et al.*, 1933; Maurer, 1965; Winker, 1949).

More specifically, though several investigators allowed children to express fears arising from non-competitive situations and analyzed content of fears at various age levels, in few recent studies were children able to express their fears under conditions which facilitated expression and interpersonal communication. For example, Angelino *et al.* (1956) instructed 9- to 12-yr-old children to list on paper the fears which they thought children of their own age group had, while in a more recent study Maurer (1965) recorded the verbatim answers given by 5- to 6-yr-olds to the question, "What are the things to be afraid of?" which was asked immediately following administration of an individually administered intelligence test. Croake (1967), on the other hand, developed a questionnaire concerning fears to which a group of adolescents responded.

For children of adolescent and later childhood age, abstract verbal representational modes of expression were sufficient for communication of feelings. However, since opportunity for iconic representation is known to facilitate communication with young children (Bruner, 1964), it was reasoned that further description of structure and developmental sequence in fears might be provided if children of early childhood age were encouraged to represent their fears iconically as they expressed them verbally.

The present study was designed to examine developmental changes in the structure of fears by describing fears of kindergarten, second and sixth grade children who were given opportunity to express their feelings verbally while representing fears iconically in drawings during individual interviews. The theses were that structural variances in fears reflecting general developmental trends might be more clearly described and that directions for future research might be specified if conditions known to facilitate expression by and interpersonal communication with younger children were provided.

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METHOD

Subjects. Sixty children were selected at random from among students in kindergarten (ages 4–6 yr), second (ages 6–8 yr) and sixth (ages 10–12 yr) grades at an elementary school populated by children from a middle socio-economic community situated in northern California. The final sample consisted of those children for whom parental permission to conduct an individual interview was obtained and totaled 54 (19 kindergarten, 15 second grade, and 20 sixth grade) children. About equal numbers of girls and boys were interviewed in each grade.

Interview procedure. Individual discussion with children was the primary method of data collection. The discussion itself followed a set of questions: (1) All of us are afraid of something, but we are afraid of some things more than others. What are you afraid of most? Draw a picture and tell me about it. (2) Sometimes we are afraid when we go to bed at night. Are you afraid when you go to bed at night? What are you afraid of? Tell me about it. (3) Sometimes after we go to bed at night and have fallen asleep we have dreams. Sometimes dreams scare me. Did a dream ever scare you? Draw a picture and tell me about it. These interviews were taped for content analysis at a later time.

Data processing. Recorded interviews were transcribed verbatim: no syntactical or grammatical corrections were made. Upon completion each transcript was proofread as tapes were played so that errors and omissions could be corrected. Content of interviews resulting from response to the first set of questions was classified by two independent raters using as a guide the system of categories developed earlier by Jersild *et al.* (1933). Where disagreement between raters in categorizing content was observed (initial interrater agreement was 0·94), tapes were replayed and transcripts along with drawings analyzed until a consensus was reached. Since bedtime fears and frightening dreams did not deviate appreciably in content from fears described initially, only frequencies of occurrence and nonoccurrence of these fears at each grade level are reported.

RESULTS

Table 1 shows the frequency of occurrence and nonoccurrence of dominant fear types described by kindergarten, second and sixth graders in response to the first question set along with existence or nonexistence of bedtime fears and frightening dreams at each grade level. In order to test for statistical reliability for each fear type, χ^2 tests for independence (Siegel, 1956) were carried out on grade level frequencies. Contingency coefficients (C) were computed as indices of the strength of association between grade and frequency of occurrence of each type of fear.

TABLE 1. FREQUENCY OF OCCURRENCE AND NONOCCURRENCE OF FEAR TYPES IN KINDERGARTEN, SECOND AND SIXTH GRADE CHILDREN

	Type of Fear									
Grade	Bodily Injury & Physical Danger		Monsters & Ghosts		Animals		Bedtime Fears		Frightening Dreams	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Kindergarten(4 to 6 years)	2	17	14	5	8	11	10	9	14	5
Second (6 to 8 years)	8	7	8	7	6	9	10	5	12	3
Sixth (10 to 12 years)	11	9	1	19	2	18	7	13	9	11

Results of statistical analyses showed moderate relationships between grade level and frequency of occurrence of fear of ghosts and monsters [χ^2 (2) $= 19{\cdot}79$, $p < 0{\cdot}01$; $C = 0{\cdot}52$] and in fears involving bodily injury and physical danger [χ^2 (2) $= 9{\cdot}97$, $p < 0{\cdot}01$; $C = 0{\cdot}40$]. Inspection of Table 1 reveals that 74% of kindergarteners, 53% of second graders, and 5% of sixth graders described fear of ghosts and monsters, while 11% of kindergarteners, 53% of second graders, and 55% of sixth graders referred to fears involving bodily injury and physical danger. In addition, less reliable grade changes in frequency of occurrence in fear of animals [χ^2 (2) = 5·89, $p < 0{\cdot}10$; $C = 0{\cdot}31$], bedtime fears [χ^2 (2) = 3·52, $p < 0{\cdot}20$; $C = 0{\cdot}24$], and frightening dreams [χ^2 (2) = 5·63, $p < 0{\cdot}10$; $C = 0{\cdot}31$] were observed. Percentages of children in kindergarten, second and sixth grades mentioning fear of animals were 47%, 40% and 10% respectively; proportions indicating fears at bedtime were 53% of kindergarteners, 67% of second graders, and 35% of sixth graders; relative frequency of occurrence of frightening dreams were 74% of kindergarteners, 80% of second graders and 45% of sixth graders.

DISCUSSION

These findings suggested the presence of a sequence in the development of fears which appeared to reflect the succession of changes in children's perception of reality described by Piaget (1955, 1962) and others (Sigel, 1964; Werner, 1957; Werner and Kaplan, 1952). More precisely, the observation that growth proceeds from a global state, with lack of differentiation, to one of increased differentiation of internal representations from objective reality, might explain the replacement of global fear of ghosts and monsters described by kindergarteners and second graders by more realistic and specific fears involving bodily injury and physical danger in sixth graders. In addition, the transition from egocentric perceptions of causality involving realism, animism and dynamism to genuine physical cause–effect perceptions, which begins at about ages 7 or 8 yr according to Piaget (1955), may account for the lower proportion of sixth graders (contrasted with proportions of kindergarten and second graders) who expressed fear of animals. Moreover, the smaller proportion of children in the sixth grade expressing fears at bedtime when darkness obscures visual images is consistent with the notion that older children's perceptions of reality are less imaginary than those of younger children. Likewise, the comparable reduction in the relative frequency of frightening dreams recalled by sixth graders may be interpreted as reflecting greater separation of fantasy from reality in perceptual processes.

The developmental sequence in the structure of fears (from formless and imaginary to specific and realistic ones) uncovered in the present study may be explained also by the fact that older children have available a more elaborated system of verbal symbols with which to understand reality and to identify specific sources of fear than do younger ones. Research bearing on developmental changes in children's learning, for instance, suggests that language assists children in distinguishing objects and in structuring their perceptual field by increasing the distinctive qualities of stimuli (Stevenson, 1972). Moreover, since language acquisition has been associated with differentiation of egocentric perceptions (Piaget, 1955), such an interpretation helps to clarify further the psychological mechanisms surrounding changes in the structure of fears with advancing age.

In addition to the influence of language on the character of fears manifest at different ages, the smaller proportions of sixth graders admitting to the presence of fears at bedtime and of frightening dreams suggested that children's behavior in the interview situation may have been influenced by social expectations. Specifically, since in American culture children are not socialized to express feelings openly to unfamiliar adults (Jersild, 1968), sixth graders may have been reluctant to acknowledge that they were frightened at bedtime and by dreams to interviewers who were unknown to them.

Furthermore, in learning behaviors consistent with their sex-roles boys are socialized to believe that it is not appropriate for them to be frightened by events of an imaginary character (McCandless, 1967). Consequently, older boys may have attempted to meet the expectations of their masculine sex-role in the interview situation by not acknowledging that they had bedtime fears or were frightened by dreams. In that respect the present study showed that a greater proportion of sixth grade boys (90 per cent) than girls (30 per cent) indicated that they *did not* have frightening dreams, while in the lower grades nearly equal proportions of girls and boys reported the absence of dreams which were sources of fear. Likewise, though the difference was less dramatic than in the case of dreams, the proportion of sixth grade boys (20 per cent) acknowledging fears at bedtime was less than the proportion of girls (50 per cent) admitting to such fears.

Nonetheless, while cultural conditioning may have influenced the tendency of older boys and girls to report the occurrence of bedtime fears and frightening dreams, the general developmental trend toward separation of internal representations from objective reality discussed earlier seemed to be reflected also in descriptions of dreams provided by children of varying ages. For example, kindergarteners tended to identify the appearance of objects as sufficient condition for them to be regarded with fear as evidenced by such defining statements as the following: "His face looks ugly." "'Cause he looks ugly." or "He had big ears." Second and sixth graders, on the other hand, found it necessary to specify the aggressive actions of the object when describing their fears by making remarks such as the following: "They wanted to cut off my head." "That he would kill me." or "Guess he would have choked me or something." These developmental changes in explanations given for frightening events were consistent with previous observations made by Laurendau and Pinard (1962) and Werner (1957) regarding the tendency of younger children not to differentiate symbols from actions of objects they represent.

This tendency toward fusion of qualities that are discrete at later developmental stages (syncretism) also seemed to be represented in the content of frightening dreams described by second contrasted with sixth graders. For example, of the 9 sixth graders who reported frightening dreams 5 expressed fear of *being killed* and 3 feared *death* of a loved person, while of the 14 kindergarteners describing dreams only 2 mentioned the word "kill" and none expressed directly fear that a parent or other loved one might *die*. Evidently, deficiency in awareness of genuine physical causality coupled with tendency not to differentiate self from objective reality was associated with conscious expression of physical destruction of self as a significant fear in young children as well as with recognition of potential permanency in physical separation from a loved object (death).

In that regard it is interesting to note that the developmental sequence in fears uncovered in the present study paralleled changes observed in explanations given by children for death. For example, Grollman (1967) and Mitchell (1967) reported studies in which 5- and 6-yr-olds anthropomorphized death as a monster when asked to explain its meaning, while 7- to 10-yr-olds associated death with separation and bodily injury. Likewise, Childers and Wimmer (1971) found that children do not recognize the universality of death until after 9 yr of age. Apparently, the emergence of differentiated perceptions of objective reality imposes what Polanyi (1966) referred to as *marginal control,* control exercised by the organizational principle of a higher level on the particulars forming its lower level, on both the structure of fears experienced by children as well as the character of their understanding of death.

In addition to marginal control on fear imposed by input to perceptual systems, it seems likely that the character of children's fears is limited by the output from the system as seen in verbal and iconic representations. Specifically, in the present study lack of differentiation observed in symbols utilized to represent fears (e.g. ghosts) served not only to reveal the general character of children's perceptions of feared objects in reality but also appeared to generate fear itself in young children. Several kindergarteners, for example, initially responded verbally that "nothing" was scary to them but proceeded to construct figures in drawings which they in turn described as a source of fear. It may be that allowing kindergarteners to construct drawings to represent fears disinhibited expression of feelings which were represented in such global forms that they generated fear. It seemed almost paradoxical that failure to differentiate symbols from objects symbolized in the perceptual process resulted in verbal and iconic representations which in themselves had the capacity for frightening the younger children.

In conclusion, though opportunity for drawing facilitated communication with younger children and though specific fears expressed at varying grade levels appeared to reflect developmental stages in children's perception of reality, no direct information bearing on either their conception of death or their stage of perceptual development was obtained. Consequently, the recommendation is that future research be conducted in which the stages attained by children along specific dimensions of perceptual development, such as syncretism, are studied in relationship with the emergence of children's conceptions of death as well as with structural changes in their fears.

SUMMARY

A total of 54 kindergarten, second and sixth grade children expressed their fears verbally while representing them iconically in drawings during individual interviews conducted in an investigation designed to describe developmental changes in the structure of fears. Analysis of interview content revealed decreases with grade level in the frequency of occurrence of fears with imaginary themes such as fear of ghosts and monsters, of bedtime fears and of frightening dreams, and an increase in the frequency of realistic fears involving bodily injury and physical danger. Results are discussed in terms of stages in the development of children's perception of reality, socialization processes and emergence of children's conceptions of death.

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DEPRESSION IN MOTHERS OF PRESCHOOL CHILDREN

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CARE OF children is primarily the responsibility of the mother or mother substitute in our society and the emotional well-being of both mother and child are mutually dependent. The ability to respond to the demands of young children requires considerable emotional and physical resources which depression is likely to impair (Weismann *et al.*, 1972).

Estimated rates of depressive disturbances in women vary considerably depending on the method of evaluation and whether they are derived from hospital admissions and outpatient attendances (Bransby, 1974), general practice consultations (Shepherd *et al.*, 1966) or community surveys. Most surveys have not looked at the effect of having children on the prevalence of depression but there is some evidence that women with young children have particularly high rates of depression. Two community surveys in two different London Boroughs using a clinical interview to identify the presence of depression found rates of between 26 and 40 per cent in women with young children (Brown *et al.*, 1975; Richman, 1975); the highest rate was in working class women with a child under six (Brown *et al.*, 1975).

Factors predisposing to depression are likely to act in an interactive or accumulative manner. Brown *et al.* (1973) showed that women who were depressed had experienced more acutely stressful events and chronic stresses during the previous year, a finding confirmed by others (Paykel, 1974). Four vulnerability factors predisposed women to develop depression under stress; these were lack of a confiding relationship with husband or boyfriend, not going out to work, having lost their own mother before the age of 11, and having three or more children under 14. In general, working class women had higher rates of depression than middle class women, particularly those with a child under six; they had more stresses in their lives but their increased susceptibility was primarily due to having a heavier loading on all the vulnerability factors except not going out to work (Brown *et al.*, 1973).

In general depressed women appear to have less material and social resources than comparable groups of non-depressed women (Weismann and Paykel, 1974). Financial and housing difficulties are amongst the predisposing chronic stresses and it may be that housing is especially important to young families because of the mother's lack of mobility, her reliance on neighbours, the long hours she spends working in the house, and the children's needs for safe and adequate space to play in. Flat living may be particularly stressful for some women (Richman, 1975). In a sample of families with a preschool child, Richman (1975) found that women living in council flats were more likely to be depressed than those in council houses. This finding was not confirmed by Moore (1974) who does not however separate out the children by age.

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Caring for young children could in itself be considered a chronic stress, especially if the child is physically or mentally handicapped, because of the pressure of the child's needs, a relatively isolated existence, and little opportunity for relaxation or stimulation outside the home (Gavron, 1966). Doubts about the correct way to bring up babies and young children and lack of any previous experience with them add to women's anxieties (Lopota, 1971). It has been suggested that it is the balance between positive and negative experiences which determine whether a person becomes depressed, and for the mother at home with young children it may be very difficult for her to achieve a satisfying balance (Philips, 1968).

The effects of childbirth may contribute to the increased rates of depression in women with babies. It appears to act as a precipitating factor in women who are susceptible to psychotic illness (mainly in the form of affective disorders) which increases in prevalence during the puerperium to *ca.* 1 per 500 births. Their course is no different from other psychotic illnesses and may be prolonged (Protheroe, 1969). However most of the depressive illnesses seen after childbirth are less severe although they may also be chronic. In a general practice population the rate of depression was increased fivefold in the three months after delivery compared with the rate during pregnancy (Ryle, 1961). Pitt (1968) described depression in 10 per cent of women following childbirth; in 4 per cent it continued for over a year. Information derived from a postal questionnaire showed that 25 per cent of women still had six or more symptoms one year later which they had developed following childbirth (Jacobsen *et al.*, 1965). How much these symptoms are hormonal in origin, and how much due to fatigue and the responsibilities of the new baby is not known; as yet it does not seem possible to predict who will become depressed during the puerperium (Gordon *et al.*, 1965) although those with a history of previous psychotic breakdown are at increased risk (Paffenburger, 1964).

What are the effects of depression on the children? Psychiatric disturbance in the mother is related to behaviour problems in preschool children both in clinic populations (Wolff, 1961) and in the community (Richman, 1975). When the content of depressive thought is directed towards the child, as often happens in puerperal psychosis, e.g. hostile feelings, fear of harming the child, anxiety that the child is abnormal or not getting enough to eat, the child seems to suffer more (Rutter, 1966). In extreme cases alternative care has to be provided, but even when this does not happen it is not surprising that a depressed woman finds it hard to cope with the demands made on her (Weismann *et al.*, 1972). The risk of her losing control and physically abusing the children may also be increased in depression (Richman, 1975). Apart from the possibility of the child being taken into care and/or the mother going into hospital, it could be that the experience of parental depression as a young child has long term effects on emotional well being, which might be especially marked in girls.

How far can our present knowledge assist in prevention and treatment? A number of measures could diminish stress in the lives of women with children and possibly help to prevent depressions or alleviate them—since social stresses appear to contribute to the development and chronicity of neurotic illnesses (Cooper *et al.*, 1970; Kedward and Sylph, 1974; Brown *et al.*, 1975). These should include adequate finance, housing and playspace, and provision of sufficient preschool facilities of various types. Going out to work may protect a woman from becoming depressed (Brown *et al.*, 1973) or contribute to her recovery (Mostow and Newberry, 1975) and women who want to work should be able to do so.

More experimentation is needed to find the most effective measures for dealing with depression. Closer co-operation with adult psychiatrists would be useful so that they recognise the stress of child rearing, and appreciate that "social" and "medical" approaches are not mutually exclusive. For instance, a day hospital for adults can be combined with a nursery group for their children (Radford *et al.*, 1974).

Self help groups may become an important means for women to break through their feelings of helplessness and isolation; and an organised paid neighbourhood group might help effectively with many incipient problems by providing support and information about services, e.g. to women after childbirth, to families with a handicapped child.

The difficulties and conflicts of women's role in society today are being increasingly acknowledged (Gove and Tudor, 1973)* and are perhaps most obvious in women with young children. We need to consider further how these problems contribute to the development of depression and whether therapeutic efforts take them sufficiently into account.

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CHILD PSYCHIATRY IN DEVELOPING COUNTRIES

KLAUS MINDE*

THE GROWTH of child psychiatry in developing countries has shown a distinct pattern. Temporally, it has followed the establishment of adult psychiatric services. In Africa, South-East Asia and Latin America these began with the establishment of isolated mental hospitals 70 to 100 years ago and became part of general hospital care just prior to World War II (German, 1972; Neki, 1973; Leon, 1973). Very little literature is available on the inception of childrens' services and there is no journal in the developing world which deals with the emotional needs of children. Yet in Africa and India, about which the author has personal knowledge, child psychiatric services have only been developed during the past seven to eight years. This mirrors the development of child psychiatry in Europe and the U.S. (Kanner, 1964) as well as paediatrics in Africa (Weller, 1972) and is possibly related to the lack of lobbying power children have upon the deployment of scarce medical resources.

There may be, however, another reason for the belated awareness of children's mental health needs. Psychiatry, like other aspects of Western medicine, was introduced to Africa and South-East Asia by the former colonial powers. Thus, initially, it was taught and practiced by Europeans who had an unavoidable ethnocentric bias and some reluctance to deal with disturbed children because their development appeared to be more enveloped in local traditions than the general functioning of their elders. They also generally did not speak the local languages and could never communicate directly with children, a problem less frequently encountered with adult patients. They may also have been influenced by the outward impression that Africans appear to treat their children like little adults, as they require domestic help from them early on, and thought that children in Africa do not require specialized services. It was thus only the emerging generation of indigenous psychiatrists who, knowing local developmental and child rearing practices, could begin to provide some services to children. For example, German (1972) in a paper summarizing presently available data on clinical adult psychiatry in sub-Saharan African, gives 91 references of which only 18 (20%) have at least one African co-author. A recent review of clinical work in child psychiatry (Minde, 1974a) cites only 16 references of which, however, eight (50%) were written by Africans.

What then are these child psychiatric services and what data have they provided? Here again, one has to evaluate the facts in a historical perspective. Psychiatry, both in Africa and South-East Asia was strongly influenced by British psychiatry (German, 1972; Neki, 1973). At the time this occurred this meant emphasis on phenomenology and primarily organic modes of treatment. British psychiatry furthermore had close ties with neurology and traditionally did not emphasize psychodynamic principles. This trend is shown in child psychiatry in developing

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countries and is enhanced by the enormous populations which have to be served with a mere handful of trained personnel. Reports from both Africa and South-East Asia (Hoch, 1967; Hazera, 1972; Izuora, 1970, 1972; Asuni, 1970; Rahim, 1972; Ramanujam, 1968) cite figures of patients who have been seen in various clinics but also talk about the general inadequacy of services. For example, Asuni (1970) stressed that his clinic was one of only two facilities in Nigeria with a population of at least 30 million children under the age of 14, while others stated that there are only about 75 child guidance clinics and six trained child psychiatrists in India (Marfatia, 1973; Ramanujam, 1975).

The type of patients seen by these clinics is difficult to evaluate as most writers give only a very general description, at times not even citing age, sex and diagnosis. Most authors also fail to state the criteria which made them apply the stated diagnosis. This leads to a tremendous variation in the presented clinical material. For example, Goodall (1972) described seven particular cases of emotionally disturbed children met in a general paediatric outpatient clinic in Kampala, Uganda, but gave no indication of the general rate of emotional disorders among her clinic population. Rahim (1972) reviewed the clinical diagnoses of 319 children seen in Port Sudan over a six-year period. He claims that 31% of his child patients had a psychoneurotic disorder, 30% primary epilepsy, 24% schizophrenia, and 7·5% each were retarded and enuretic. About 60% of his population was aged 11–15, the rest younger. His data thus represent a high number of schizophrenic and neurotic children in a relatively young population and includes no children with behaviour disorders. Adomakoh (1973) in his report from Ghana diagnosed 60% of his patients as either retarded or epileptic, 15% as psychotic and 24% as neurotic. Under the latter category he included children who presented with study problems and who complained of a variety of symptoms associated with muscle tension such as headaches, pain in the eyes, chest or abdomen. This cluster of symptoms was first described by Prince (1960) in Nigeria, confirmed by Mbanefo (1966) and German *et al.* (1970) in Uganda and has been called the "brain fag syndrome". None of the above authors, however, nor a recent more psychodynamically orientated investigation into the brain fag syndrome (Minde, 1974b) would have labelled these youngsters as 'neurotic' as defined fly any of the standard psychiatric nomenclatures. In contrast to the data of Rahim (1972) and Adomakoh (1973), Isuora (1972) described only 6·5% of his children as suffering from "neuroticism" but included general speech disorders (10%) and deafness (12%) among his psychiatric diagnoses.

Some authors have written about specific psychiatric conditions, although here again the operational definition of the condition in question is variable. Longe (1972) described in detail four autistic children in her clinic in Lagos. She found family characteristics in her sample which were dramatically similar to those described in the Western literature (Rutter, 1968). Ortiguez *et al.* (1965) discussed 14 cases of juvenile delinquency in Dakar and related the increase of this problem in this city to the loss of the urban child's collective identification with his extended family. This loss, according to Ortiguez, is then counteracted by the child's identification with the delinquent gang. Okasha *et al.* (1972) described the symptomatology of 134 depressed children seen in Cairo over a three year period. The authors differentiated between children who were "phobic", "enuretic" and "manic depressive" and those labelled "depressives". The symptoms leading to their respective diagnoses such as "difficulties at school", "immaturity", "lack of confidence", or "warm personality" were not operationally defined and hence remain of uncertain validity. Ibrahim (1973) reported on 24 children who refused to go to school, seen over four years in Khartoum. He found 65% of the children's mothers to be over-protective and 60% of them to live away from their fathers. As no control data are given, the figures have only a limited meaning.

Despite the great variability in the literature discussed above, four common themes nevertheless emerge. The most uniform observation, made by both African and South-East Asian child psychiatrists, is the high percentage of children who present with symptoms of mental retardation and epilepsy. Figures here range from 37% of all clinic patients (Rahim, 1972) to 55% (Minde, 1974a) and 60% (Izuora, 1972). The second common theme is the high percentage of retardation secondary to infections and trauma among the retarded patients. In Ramanujam and David's data (1969) from India only 38% of the retarded children were classified as suffering from primary retardation and Minde (1974a) reported this group to contain only 29% of his population. These results are undoubtedly a reflection of the high rate of central nervous system infections among children in these countries. The third common observation is that children brought to psychiatric clinics are mainly adolescent or in the immediate pre-adolescent period. Most authors deal almost exclusively with children above the age of ten and some specify an even older group (Hazera, 1972). The last generalization one can make from the presented data is the low number of children who are brought to clinics because of general behaviour or acting out disorders. No study reports such problems in more than 30% of their clinic population and in few studies does one find any specific mention of acting out disorders (5·5% by Izuora, 1972; 3% by Adamakoh, 1973; 14% by Minde, 1975b; 8% by Ramanujam, 1968). There is, however, a fairly high percentage of children who present with psychosomatic disorders (20% Ramanujam, 1968; 10% Minde, 1974a).

Having looked at some clinic samples of psychiatrically disturbed children the question arises as to what extent this population is representative of the incidence of psychiatric morbidity in the general population. Here data becomes less extensive for Africa and none are available for South-East Asia. Giel *et al.* (1969) studied the psychiatric morbidity of two Ethiopian villages. They found 3–4% of all children under the age of nine and 10% of those ten years and older to show psychological abnormalities. No detailed breakdown of symptomatology was given. Minde (1974a, 1975a) examined the incidence of psychiatric difficulties in various child populations in Uganda more systematically. He found the global incidence of psychiatric disturbance in primary school children to be 18% with a high of 24% in an urban setting and 10·5% in a rural area. Cederblad (1968) focused on specific psychological symptoms in children. She screened all 1716 children aged 3–15 who lived in a Sudanese village with respect to stuttering, sleep walking, enuresis, encopresis and sleep disturbances. Children showing more than one of the above symptoms and a Swedish control group were then studied in more detail. Cederblad found the Sudanese children to have a generally lower rate of severe symptoms than those of the Swedish sample (8 vs 25%). The Sudanese, however, showed a higher incidence of aggression and nocturnal enuresis than their Swedish controls. While Cederblad used a questionnaire which had not been validated to denote definite psychopathology Minde in his Ugandan studies used a validated symptom screening instrument (Rutter, 1966), a known parental symptom check list (Peterson and Quay, 1967) and an accredited child psychiatric classification (GAP, 1966). His results (Minde, 1975b) showed these instruments to possess strong transcultural relevance. His data also demonstrated that many interpersonal and social risk factors associated with psychiatric disorders in the West, such as a broken home, frequent moves and general poverty are equally powerful concomitants of maladjustment in developing countries.

While the available literature gives a fair estimate of the problems child psychiatrists face in Africa and South-East Asia, the delivery of services to the patients and the teaching of child psychiatry has received very little scrutiny. Neki (1973) cites some reported data which reflect the very few hours given to teaching in psychiatry at various medical schools in South-East Asia. No such figures are available for child psychiatry. This most likely reflects the almost total absence of any such teaching, including the instruction in general growth and development to medical students, and more importantly, to paramedical personnel.

The clinical data referred to previously indicate clearly that hospital child psychiatry in Africa and South-East Asia deals primarily with children of the professional city class (Hazera, 1972; Minde, 1974a), those who have organic impairments and those with psychosomatic complaints. It is these latter two conditions which are perceived as "medical" by the average citizen and brought to clinics. Children with general behaviour disorders, learning difficulties and anti-social activities are not usually brought to a hospital but sent to indigenous healers (35% of all children seen by the author in Uganda had first been seen by a healer and 35% were investigated by the author and a healer simultaneously) or else simply expelled from school or severely punished (Minde, 1975c). It is these children who should and can be treated by paramedical personnel in the community as there is a very strong reluctance among medical personnel to forego the convenience of hospital offices in lieu of community medicine (Minde, 1975c). The achievement of this goal, however, requires the incorporation of knowledge about child development and specific behavioural abnormalities into the teaching programme of medical and public health assistants as well as teachers. In no African or South-East Asian country has this been implemented systematically. This leaves almost all disturbed children in Africa and South-East Asia without any professional assistance.

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CRITICAL NOTICE

The Practice of Educational Psychology. M. Chazan, T. Moore, P. Williams and J. Wright (with a chapter by M. Walker). Longman, London, 1974. pp. x + 422. £5.95.

The publication of this book may well serve as a sign that the profession of educational psychology in this country has reached an important developmental stage. The profession's rate of growth and the increasing output from training courses have led to a need for both a publication which interprets to teachers and other professionals how educational psychology is related to educational psychologists and perhaps more urgently a manual for educational psychologists in training. *The Practice of Educational Psychology* fulfils both needs, aiming to present an outline of the way in which educational psychology is applied in the work of school psychological services and to make the gap between the theoretical and practical aspects of the profession "easier to cross". If, as one hopes, teachers will form a large part of the general readership, the book will do much to align correctly their attitudes and expectations. As a teaching manual, it will no doubt have found a place already on the booklists of all training courses in the country, to the considerable relief of tutors who for too long have been forced to rely either on an assortment of journal articles or on texts which, excellent though they were, dealt with professional problems in another age or another country.

The organisation of the book not unexpectedly reflects the curriculum of most training courses in the U.K., covering in five parts background data on the organisation of educational and other services, methods of investigation used by educational psychologists, the characteristics of the children and the effectiveness of the various educational and psychological treatment procedures, communication with children, parents and colleagues, and finally a brief look at future developments. The four main authors have made fundamental contributions to the profession independently of this work and the assignment of the various sections to them allows each to exhibit the full range of his knowledge and professional experience. Generally, as an expository and training textbook the work has all the required virtues: there is ample factual material on the background to the educational psychologist's duties, the broad professional and clinical issues are clearly stated and examined and the sources are well referenced. But the most important aspect of the book must be that at last successful professional and clinical procedures have been documented and recorded. In this respect Parts 2 and 4 of the book—"Diagnostic Procedures" and "Communication"—are especially valuable. They address themselves to the questions of styles of problem-solving, techniques of interviewing and levels of intervention and they are especially useful because, like all good instructional material, they allow the student to understand clinical and professional strategies without having to submit himself personally to exhaustive empirical research in order to arrive at the salient features of "good" style. Many practising psychologists have gained this style by imitation, some by trial and error, while others have had the good fortune in training to sit at the feet of experienced clinicians or professional educational psychologists and hear at first hand what is akin to the "folklore" of the profession. In saying this, one is emphasising that learning how to become an educational psychologist entails, among other things, the acquisition of skills and abilities of a kind which on the one hand allow one to investigate and treat individuals and on the other to function as a local authority employee.

Moore and Williams in Section 2 go a long way towards pulling together the disparate features of these roles and Moore's chapters are perfect examples of the transcription of "good practice" which is such an outstanding feature of the book. The experienced educational psychologist will know of course what Moore is talking about when he discusses the need to manage interviews in particular ways (e.g. when he gives advice on avoiding the labelling of a child by such things as the bald classroom announcement "*The psychologist has come to see Tommy Jones*"). But what is axiomatic for the experienced psychologist needs for instructional purposes to become a set of procedural guidelines and Moore's success in providing these makes up for the lack of space given to criterion-referenced testing and profile and learning disability approaches. In the same vein as transcriber, Wright records "good practice" as it is interpreted within the world of the local authority. He, more than any other contributor is well placed to judge what is relevant or desirable in that setting and his approach is brisk and businesslike. His detailed examination of the role of the educational psychologist as educationalist and as a member of inter-disciplinary teams is amply illustrated by the "Notes on a City Child Guidance Service and its relation to other services".

The practical–theoretical balance is well maintained within the work by the chapters contributed by Williams and Chazan. Williams' introductory chapters in the "Background" section and Miss Walker's examination of allied social services brings together information necessary for an understanding of the statutory and local authority provision which form the background to the general work of the educational psychologist. Williams writes as one who has been able to step outside the profession and take a detached look at the contribution it makes to education as a whole. Similarly, Miss Walker's chapter seen from outside the profession places the educational psychologist well in the local authority context and this section is useful even though it is somewhat marred by having been conceived prior to April, 1974. Chazan's section on children with special needs presents a masterly digest of findings relevant to the assessment and treatment of handicapped children and is the kind of reference work to which practising educational psychologists will find themselves turning to frequently.

A work which sets out in text book fashion to describe and explain professional practice cannot but wish to maintain the status quo rather than disturb it. The very excellence of "The Practice of Educational Psychology" through no fault of its authors, could constitute its biggest weakness, viz. that by so neatly encompassing the work of the educational psychologist, its descriptions might become prescriptions. And despite the strength of Wright's model S.P.S. and Williams' interesting look into the future, one has from time to time the feeling that the book does little to dispel a frequently held notion that (to quote Shapiro's dictum) the psychologist is "rather like the man who has come to read the gas meter". Judging by the mood of recent entrants to the profession and looking at the number of controversial issues debated whenever two or three educational psychologists are gathered together, the profession has a long way to go yet and will wish to be a much more powerful force for change within the local authority. "Chazan, Moore, Williams and Wright"—the standard textbook—states the main theme. It is up to subsequent writers to supply the variations.

K. F. CORNWALL

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BOOK REVIEWS

Oral Verbal Intelligence Test. D. YOUNG. University of London Press, London, 1973. Specimen set 50p.

ALTHOUGH the concepts of differential psychology are allegedly unfashionable at the moment there appears to be a continuing demand for measures of general intelligence which can be conveniently administered by teachers. The OVIT is a recent example of these, its somewhat strange title differentiating it from Young's earlier Non-Readers Intelligence Test. Standardised on a total population of 8668 children, this test yields intelligence quotients for children within the age range 7·6 to 14·11, its 92 items being sub-divided into four sub-tests of familiar 11+ content, e.g. analogies and opposite analogies. Administration is usually untimed, two half-hr periods normally being sufficient for administration.

The manual contains, in addition to tables for transforming scores into quotients, an unexpectedly comprehensive account of the test's rationale and construction; and supplies both correlational and factorial data as to reliability and validity. Unfortunately, these refer mainly to unpublished tests and the factor analyses seem to have involved composites of variables already included in the matrices. Even so, I think that on balance, the OVIT represents a sound attempt to assess general intelligence through well-tried item content. It should work well in a predictive battery; as a screening device and for purposes of ability grouping. And considering the fact that it was not produced by a research institution, it reaches a reasonably high standard of presentation. However, at a more fundamental level a scrutiny of the items highlights the considerable difficulties encountered in distinguishing between aptitude and achievement; behaviourists like Becker and Engelman would consider that the operations sampled in the test content are eminently teachable.

J. WARD

Abnormal Children and Youth: Therapy and Research. A. DAVIDS. John Wiley and Sons, Inc., New York, 1972. pp. xii + 211. $11.95.

THIS IS a collection of studies on two rather different groups of children. The first is a group of primary school age who were inpatients in an American psychiatric hospital where the author is a psychologist. There is a 5-yr follow-up of 27 grossly disturbed children, 10 of whom were called "schizophrenic". Then there is an investigation of 38 disturbed boys who were compared to normal controls on psychological tests purporting to measure "ego functions". There are also several other studies on very small numbers of these hospitalized children, most of which amount to little more than case histories. The second main group is of underachieving adolescents who were seen in connection with the writer's work at Brown University. Personality tests were administered to the youngsters and clinical ratings were made; the PARI questionnaire was used with mothers. In addition the book contains descriptions of treatments used and quite a lot of clinical details. None of the studies seemed to the reviewer to be substantial enough to be assembled in a heterogeneous collection of this kind. Some of them might well have appeared in journals as preliminary communications. Even then, more details would have been required on sampling and the validity of some of the esoteric tests that were used. Some attempt is made to present the studies clearly. Unfortunately, the results are not summarized concisely, either at the end of each chapter, or at the end of the book. It often requires a frustrating search to grasp what has been found; even then efforts are not greatly rewarded. The book may be of some value to researchers as a work of reference.

IAN BERG

Teaching Left-Handed Children. MARGARET CLARK. University of London Press, London, 1974. pp. 48. 50p.

ONE IN TEN of the nation's school children write with their left hands and get astonishingly little help in the task unless they are very lucky with their teacher—a situation little altered since the 1920's, when Burt noted how they were left to find their own salvation.

Margaret Clark is the latest in a long line of writers who have sought to redress the balance. There is little new in this booklet, and everyone had to work very hard to spin it out to 48 pp., but it makes some useful material accessible to parents and teachers.

LESLIE RIGLEY

J. Child Psychol. Psychiat., Vol. 17, 1976, p. 88. Pergamon Press. Printed in Great Britain.

ANNOUNCEMENTS

INTERNATIONAL SOCIETY FOR THE STUDY OF BEHAVIOURAL DEVELOPMENT

The following new Officers of the Society were recently elected:

President:

Professor Jan de Wit, Paedologisch Institut, Vossiusstraat 56,
Amsterdam, The Netherlands.

General Secretary:

Dr. Harry McGurk, Department of Psychology, University of Surrey,
Guildford, Surrey, England.

The society exists to foster and advance the study of human developmental processes at all stages of development and to facilitate international communication and information exchange between behavioural scientists from a variety of disciplines. In the service of these aims symposia and conferences are organized at regular intervals and a newsletter is published. Plans are under way for the eventual publication of a journal specifically devoted to the aims of the Society.

Membership of the Society is open to individuals from any branch of behavioural science who are professionally engaged in research on human developmental processes. The fee for the current biennium (1975–1977) is £5.75. Membership enquiries should be sent to the General Secretary at the address indicated above.

The second Rochester International Conference on Schizophrenia will be held at the University of Rochester Medical Center, Rochester. New York, on 2–5 May, 1976. The theme of the conference will be "*The Origin, Pathogenesis and Course of Schizophrenia and Related Disorders.*"

It is anticipated that outstanding investigators in the area of schizophrenia will present significant new findings from current research. Included will be sessions on Genetic Transmission; Underlying Biological Factors (Biochemical, Neurophysiologic, Psychophysiologic); Underlying Family and Socio–Cultural Factors; Premorbid Developmental Factors; Onset and Course; and Attention and Information Processing.

For further information regarding registration and fees, contact:

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relationships, description,
classification

HINDE, ROBERT A. (1976) On describing relationships. *J. Child Psychol. Psychiat.* **17,** 1–19.

Summary—(1) The study of inter-individual relationships requires a descriptive basis. Description, however, must be guided with respect to the ultimate goals of the nvestigator—understanding the dynamics of relationships, prognosis, specification of necessary conditions, etc. (2) The nature of inter-individual relationships, how they can be described, and the nature of their stability, are discussed briefly. (3) The following aspects of relationships are discussed: (i) Content of the component interactions; (ii) Diversity of interactions; (iii) Reciprocity vs Complementarity: Control and Power; (iv) Qualities of component interactions; (v) Relative frequency and patterning of nteractions; (vi) Multidimensional qualities; (vii) Cognitive and moral levels: Levels of perspective.

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pre-school, staff behaviour,
social class, language

TIZARD, BARBARA, PHILPS, JANET and PLEWIS, IAN (1976) Staff behaviour in pre-school centres. *J. Child Psychol. Psychiat.* **17,** 21–33.

Summary—Staff were observed in pre-school centres with three different kinds of educational orientation, traditional free-play nursery schools, nursery schools which used a language teaching session and nurseries run on free-play lines but not staffed by teachers. Half of the centres selected contained predominantly working-class children, half predominantly middle-class. Significantly more "cognitive" staff behaviour was observed in middle-class than working-class centres, and the amount of "cognitive" staff behaviour was also significantly influenced by the educational orientation of the centre. The working-class children in schools with a language programme had significantly higher language test scores than other working-class children.

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adolescence,
psychiatric disorder,
follow-up

RUTTER, MICHAEL, GRAHAM, PHILIP, CHADWICK, O. F. D. and YULE, W. (1976) Adolescent turmoil: fact or fiction? *J. Child Psychol. Psychiat.* **17,** 35–56.

Summary—The concept of adolescent turmoil is considered in the context of findings from a total population epidemiological study of Isle of Wight 14–15-yr-olds. It i concluded that parent–child alienation is not a common feature unless the adolescents are already showing psychiatric problems. Inner turmoil, however, as represented by feelings of misery and self-depreciation is quite frequent. Psychiatric conditions are only slightly commoner during adolescence than in middle childhood but the pattern of disorders changes in terms of an increase in depression and school refusal. Many adolescent psychiatric problems arise in early childhood but conditions arising for the first time during adolescence differ in important respects from those with an earlier onset.

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nursery children,
visual research,
eyebrow-raising, eye widening

WHELDALL, KEVIN and MITTLER, PETER (1976) Eyebrow-raising, eye widening and visual search in nursery school children. *J. Child Psychol. Psychiat.* **17,** 57–62.

Summary—Small groups of nursery school children were videotaped listening to a story during the course of which they were exposed to the sound of a loud horn hidden from view. It was hypothesised that this would elicit eyebrow-raising but this was not confirmed. However, a number of children displayed an eye widening response. The results are interpreted in terms of previous research and theory regarding the function of brow-raising/eye widening in terms of searching behaviour.

attention, perception,
preference, semantics

Hutt, Corinne, Forrest, Barbara and Newton, Jill (1976) The visual preferences of hildren. *J. Child Psychol. Psychiat.* **17,** 63–68.

ummary—Five-yr-old children were found to "like" most those pictures which they ooked at most while this association was considerably weaker in 7-yr-olds. Both groups f children looked longer at meaningful stimuli, whether Nice or Nasty, than at abstract esigns, and the preferences of the younger children followed this trend whereas the references of the older children were in the order Nice > Neutral > Nasty. The nterpretation of the results illustrated the interdependence of the developmental rocesses of attention, preference and semantics.

fears in children,
developmental changes,
imaginary fear

Bauer, David H. (1976) An exploratory study of developmental changes in children's ears. *J. Child Psychol. Psychiat.* **17,** 69–74.

Summary—A total of 54 kindergarten, second and sixth grade children expressed heir fears verbally while representing them iconically in drawings during individual nterviews conducted in an investigation designed to describe developmental changes n the structure of fears. Analysis of interview content revealed decreases with grade evel in the frequency of occurrence of fears with imaginary themes such as fear of hosts and monsters, of bedtime fears and of frightening dreams, and an increase in the requency of realistic fears involving bodily injury and physical danger. Results are iscussed in terms of stages in the development of children's perception of reality, ocialization processes and emergence of children's conceptions of death.

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   SEARS, R. R., WHITING, J. W. W., NOWLES, V. and SEARS, P. S. (1953) Some child-rearing antecedents of aggression and dependency in young children. *Genet. Psychol. Monogr.* **47,** 135–234.

   PIAGET, J. (1953) *The Origins of Intelligence in Children* (Translated by Cook, M.), Routledge & Kegan Paul, London.

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THE ROLE OF TUTORING IN PROBLEM SOLVING*

DAVID WOOD, JEROME S. BRUNER and GAIL ROSS
Nottingham, Oxford and Harvard Universities

THIS PAPER is concerned with the nature of the tutorial process; the means whereby an adult or "expert" helps somebody who is less adult or less expert. Though its aim is general, it is expressed in terms of a particular task: a tutor seeks to teach children aged 3, 4 and 5 yr to build a particular three-dimensional structure that requires a degree of skill that is initially beyond them. It is the usual type of tutoring situation in which one member "knows the answer" and the other does not, rather like a "practical" in which only the instructor "knows how". The changing interaction of tutor and children provide our data.

A great deal of early problem solving by the developing child is of this order. Although from the earliest months of life he is a "natural" problem solver in his own right (e.g. Bruner, 1973) it is often the case that his efforts are assisted and fostered by others who are more skilful than he is (Kaye, 1970). Whether he is learning the procedures that constitute the skills of attending, communicating, manipulating objects, locomoting, or, indeed, a more effective problem solving procedure itself, there are usually others in attendance who help him on his way. Tutorial interactions are, in short, a crucial feature of infancy and childhood. Our species, moreover, appears to be the only one in which any "intentional" tutoring goes on (Bruner, 1972; Hinde, 1971). For although it is true that many of the higher primate species learn by observation of their elders (Hamburg, 1968; van Lawick-Goodall, 1968), there is no evidence that those elders do anything to *instruct* their charges in the performance of the skill in question. What distinguishes man as a species is not only his capacity for learning, but for teaching as well. It is the main aim of this paper to examine some of the major implications of this interactive, instructional relationship between the developing child and his elders for the study of skill acquisition and problem solving.

The acquisition of skill in the human child can be fruitfully conceived as a hierarchical program in which component skills are combined into "higher skills" by appropriate orchestration to meet new, more complex task requirements (Bruner, 1973). The process is analogous to problem solving in which mastery of "lower order" or constituent problems in a *sine qua non* for success with a larger problem, each level influencing the other—as with reading where the deciphering of words makes possible the deciphering of sentences, and sentences then aid in the deciphering of particular words (F. Smith, 1971). Given persistent intention in the young learner, given a "lexicon" of constituent skills, the crucial task is often one of com-

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*This research was conducted at the Center for Cognitive Studies at Harvard University under Grant MH-12623 of the U.S. National Institutes of Health.

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bining (usually in an appropriate serial order) the set of component acts necessary to achieve a particular end. The child, faced with new challenges, must match means to ends, and it is this matching (and the correction of mismatching) that is at the heart of problem solving (e.g. Saugstad and Raaheim, 1960; Newell *et al.*, 1960; Miller *et al.*, 1960).

Discussions of problem solving or skill acquisition are usually premised on the assumption that the learner is alone and unassisted. If the social context is taken into account, it is usually treated as an instance of modelling and imitation. But the intervention of a tutor may involve much more than this. More often than not, it involves a kind of "scaffolding" process that enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the adult "controlling" those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. The task thus proceeds to a successful conclusion. We assume, however, that the process can potentially achieve much more for the learner than an assisted completion of the task. It may result, eventually, in development of task competence by the learner at a pace that would far outstrip his unassisted efforts.

But, we would contend the learner cannot benefit from such assistance unless one paramount condition is fulfilled. In the terminology of linguistics, *comprehension of the solution must precede production*. That is to say, the learner must be able to *recognize* a solution to a particular class of problems before he is himself able to produce the steps leading to it without assistance. There is ample evidence from developmental psycholinguistics that for language acquisition such is almost universally the case (McNeill, 1970). Olson (1966, 1970) has similarly indicated that a child is capable of recognizing a diagonal design before he is able to construct one on a checker board, since the constituent acts of placement require more degrees of freedom (i.e. taking into account both horizontal and vertical axes) than he can handle simultaneously. Clinchy (1974), using the classic game of Twenty Questions, has likewise shown that her young subjects were able to discriminate between good strategy and bad, good questions and less good ones, if they were asked to choose between them, even though unaided they could not produce good strategies or even good questions.

It is quite obvious why comprehension *must* precede production and why in most instances it *does*. It must because without it there can be no effective feedback. One must recognize the relation between means and ends in order to benefit from "knowledge of results". There may be a marginal exception to this rule in the specialized area of learning without awareness, but it is probably a narrowly defined exception, since even bio-feedback procedures with human subjects are dependent upon the subject being able to realize when and by what means he has achieved an objective. Nevertheless, we should not overlook the role of serendipity, "the faculty of making happy and unexpected discoveries by accident". Plainly—and this will be very plain when we treat the observations of the children and their tutor—children do in fact gain a sense of possible outcomes as well as of means for achieving outcomes by a process of what on the surface looks like rather "blind" (though hardly random) trying-out behaviour. Such preliminary "blind" action may in fact be a necessary condition for the children to discover not only the nature of the final objective, but also some of the means for achieving it. Yet, such preliminary behaviour in search of the structure of the problem often requires the support of the tutor, and may indeed be directly attributable to the tutor's role as an activator —one of the features of scaffolding to which we return in the discussion of our results.

Our concern is to examine a "natural" tutorial in the hope of gaining knowledge about natural as well as automated teaching tasks. Our observations are not to be regarded as a test of an hypothesis about the tutoring process. Rather, they are attempts at systematic descriptions of how children respond to different forms of aid. We are, as it were, involved in problem-finding rather than in problem-solving (Mackworth, 1965).

THE TASK

Thirty children, seen in individual sessions lasting from 20 min to 1 hr, formed the sample used in the study. They were equally divided into 3-, 4-, and 5-yr-olds, each age-group in turn being equally divided between girls and boys. All 30 children were accompanied by their parents who lived within a five mile radius of Cambridge, Mass. and had replied to advertisements for subject volunteers. They were predominantly middle-class or lower middle-class.

The task set the children was designed with several objectives in mind. First and foremost, it had to be both entertaining and challenging to the child while also proving sufficiently complex to ensure that his behaviour over time could develop and change. It had to be "feature rich" in the sense of possessing a variety of relevant components. We tried to make its underlying structure repetitive so that experience at one point in task mastery could potentially be applied to later activity, and the child could benefit from after-the-fact knowledge or hindsight. But the task had not to be so difficult as to lie completely beyond the capability of any of the children. And finally, we did not want to make too great demands upon the child's manipulatory skills and sheer physical strength.

Note at the outset, then, that we have already constrained our results by the choice of a particular task; one that is "fun", one that is multifaceted and therefore "interesting", one that is within easy reach of a child's skills, and one that is continuous in its yield of knowledge. We shall revert to these matters in interpreting our results.

With these constraints in mind, the first author designed the toy illustrated in Fig. 1. The material is wood. The toy consists of 21 blocks that combine to form a pyramid standing about 9 in. high with a 9 in. square base. There are six levels in the pyramid. The top block is a solid square with a circular depression in its bottom. Each remaining layer is composed of 4 equal sized blocks made up of two locking pairs. Each pair fits together by a hole and peg arrangement. When one pair is fitted in the correct orientation, two other half pegs are brought together; the other pair brings together two half-holes. These form the means for connecting the two pairs to form the four piece layer. The blocks were designed so that all pegs would fit into all holes. In addition to pegs and holes, each four-block layer has a shallow round depression in its base and a matched elevation on top. These can only be formed by putting the appropriate pairs together in the correct orientation, since each block possesses one-quarter of each of these larger connectives.

THE TUTORING PROCEDURE

The tutor's "program", which we now describe, was agreed upon in advance. By following a set of simple prescriptions the tutor endeavoured to gear her behaviour to the needs of the individual child while keeping reasonable comparability of procedure from child to child and age group to age group. Above all, her aim with every child was to allow him to do as much as possible for himself. She would always try to instruct verbally, for example, before intervening more directly, only doing the latter when the child failed to follow a verbal instruction. The child's success or failure at any point in time thus determined the tutor's next level of instruction.

When the child first came to the experimental room, he or she was seated at a small table, with the 21 blocks of various shapes and sizes spread out in a jumble. He was invited to play with the blocks. The child could have no idea what the blocks might look like when put together. He was left to his own devices for about 5 min so that he might become familiar with the blocks and the situation. The blocks were simply there, to play with if he wished.

The tutor would then usually take up two of the smallest blocks and show the child how these could be joined together to form a connected pair. If the child made up a correct pair on his own in free play, the tutor would use it as an example. She would then ask the child to "make some more like that one".

The tutor would then recognize and respond systematically to three types of response from her charge. Either the child ignored her and continued with his play; or he took up the blocks which she had just assembled and manipulated them; or he tried to make something with other blocks in a way more or less similar to the tutor's own method, by putting pegs into holes, for example. If the child had ignored her, the tutor would again present suitable and constrained material already assembled, perhaps simply joining and positioning two blocks to form a correct pair. If the child had tried to assemble pieces for himself but had overlooked a feature, then the tutor would verbally draw his attention to the fact that the construction was not completed. For example, if he had selected pieces himself and put them together wrongly, the tutor would ask him to compare his construction with hers and to make his similar. If, however, she herself had *presented* the material for construction to the child, she would herself correct any error that resulted.

Where possible, finally, she left the child to his own devices. It was only if he stopped constructing or got into difficulty that the tutor intervened. Her aim was to let the child pace the task for himself as far as possible.

There is one remaining issue that will not concern us formally in this study but which is of some importance. The tutor, the third author of this paper but not of this paragraph, brought to the task a gentle, appreciative approach to the children. She did not so much praise them directly for their constructions or for their attention to the task, but rather created such an atmosphere of approval that the children seemed eager to complete their constructions—often, seemingly, to show her as well as to reach the goal *per se*. A testing procedure and a tutor create an atmosphere of encouragement or discouragement: in the present case it was the former, and the results certainly reflect it.

The matter does not stop there. The blocks are of good solid wood and the children, during the initial free period of five minutes, enjoyed playing with them freely, often constructing in the service of highly imaginative themes. They did not always enjoy giving up imaginative play for the more constrained task of building a pyramid with due regard for geometric constraints. Imaginative work during free play was often followed by a rather uninspired performance of the presented task. The tutor was a spokesman, so to speak, for the geometry of the task. As such, she may have had a dampening, if helpful, function in terms of getting the children to do *this* task. But, doubtless, the behaviour we shall be describing in the following section reflects the nature of the task for which the tutor was an adherent. Yet, the same limitation may beset any tutor dedicated to a particular outcome.

System of scoring

At any point in time, the child could either be manipulating separate pieces which he was seeking to assemble, or assemblies of pieces previously made up. The assembly operations were further subdivided into two categories: assisted, in which the tutor either presented or specifically indicated the materials for assembly, and unassisted, where the child himself selected material. In both cases, the constructions created might or might not meet all task constraints. Where they did not—a mismatch—we noted whether the child rejected them, or simply laid them down as assembled. Similarly, when the child picked up and disassembled previous constructions, he might or might not go on to reassemble them. This too was noted.

We noted every intervention by the tutor. These were classified into one of three categories: (a) direct assistance, already defined above, (b) a verbal error prompt, which characteristically took the form, "Does this (a mismatched construction) look like this (a matched one)?", and (c) a straightforward verbal attempt to get the child to make more constructions, "Can you make any more like this?" In each case, we scored the child's subsequent behaviour into the above categories.

Interscorer reliability

Two scorers, working independently, achieved 94% agreement on a pool of 594 events scored directly from video-tape.

Observations on tutorials

Whenever a child picked up blocks and put them together or when he selected previous constructions and took them apart, the act was scored. Total number of acts were roughly similar for all ages. The fours performed a median 41, the threes 39, and the fives 32. The difference between fours and fives approaches, but does not achieve, significance ($U = 26, p < 0{\cdot}1$). In terms of overall task activity, then, there were no significant differences between groups. However, the *composition* of these activities differed markedly from age group to age group.

It will come as no surprise that older children did better in the tasks. The older children produced a larger number of correct constructions in which they actually put self-made pieces of the puzzle together correctly themselves. The ratio of incorrect to correct solutions progressing from 9 : 0 to 2 : 8 to 1 : 2 for the three age groups. Or note that it takes 15 acts of pair construction to make a correct pyramid, and that more than 75% of these acts were unassisted among the 5-yr-olds, in contrast to 50% and 10% among the fours and threes respectively.

None of the 3-yr-olds could put four blocks together correctly, while all the 4- and 5-yr-olds did so at least once. Older children frequently picked up matching pieces for construction with no prior "trial and error", a median of seven such "quick" constructions being made by each of them, in contrast to three per child at four years and less than one per child for the youngest group (5 yr vs 4 yr, $U = 12$, $p < 0{\cdot}02$; 4 yr vs 3 yr, $U = 10$, $p < 0{\cdot}002$). Increasing age, then, is marked not only by success but by the emergence of more complex, interlocking sequences of operations and by the development of more accurate, intuitive techniques of fitting blocks together.

Consider now the issue of recognition and production. The youngest children *took apart* almost as many constructions as they had put together (a median of 13·0) while the older children were much less likely to "deconstruct" their assemblies (the 4-yr-olds taking apart a median 5·0, and the 5-yr-olds a median 4·0). But note that *when* a 3-yr-old took up and disassembled a *correct* construction he put it back together again two-thirds of the time on average (without any intervention by the tutor), the performance suggesting an appreciation of the fitness of the original. In contrast, having picked up an *incorrect* construction he would restore it only 14% of the time. In fact, not one 3-yr-old reassembled his incorrect constructions more frequently than his correct ones. More important still was the finding that the 3-yr-olds were just as sensitive as the 4-yr-olds to the difference between acceptable and unacceptable constructions. The two were equally likely to reassemble appropriate constructions and to leave scattered those that had been inappropriately constructed. Thus, although the youngest children were far inferior to the middle group when it came to *constructing* appropriate assemblies, they were just as adept at *recognizing* an appropriate one when they encountered it. The oldest children had, of course, become more sophisticated still, reconstructing some nine out of ten correct constructions they had disassembled and only two in ten of the incorrect ones that they had disassembled—but the difference is not very great between them and the younger groups.

This result surely suggests that, as noted, comprehension precedes production. The 3-yr-old *recognizes* what is appropriate before he can readily produce a sequence of operations to achieve it by his own actions. It is easier for him to recognize what "looks right" than to carry out a program of action to produce it.

The tutorial relationship

Obviously, the younger children need help more. For 3-yr-olds the proportion of totally unassisted constructions is 64·5%, for the 4-yr-olds 79·3%, and for the 5-yr-olds, 87·5%. The median instances per child of constructions carried out with pieces proffered by the tutor, as compared to self-selected pieces is 9·0 for the 3-yr-olds, 6·5 for the 4-yr-olds, and 3·0 for the 5-yr-olds. But it is not so much in amount as in the kind of dependence that one finds a difference in the tutorial interaction at the three ages.

For 3-yr-olds usually ignore the tutor's suggestions, paying little heed, particularly to her verbal overtures. This is illustrated by the sharp disparity between the median figure of eleven tutor rejections by the 3-yr-olds, in contrast to virtually none by the older children who were plainly ready to accept tutoring. This means that *vis-à-vis* the 3-yr-old the tutor has the initial task of *enlisting the child as a tutoring partner*. With the youngest ones, the tutor is principally concerned with luring them into the task either by demonstrating it or providing tempting material. Consequently, the tutor intervenes directly twice as often with the 3-yr-olds than with the 4-yr-olds, and four times more often than with the eldest group (see Tables 1 and 2). The tutor, then, is both intervening more and being ignored more when working with 3-yr-olds than with older children.

TABLE 1. MEDIAN INSTANCES OF DIRECT INTERVENTIONS, VERBAL CORRECTIONS AND GENERAL VERBAL DIRECTIONS (REMINDING SUBJECTS OF TASK REQUIREMENTS)

		Age	
	3	4	5
Direct intervention (Showing)	12·0	6·0	3·0
Verbal correction (Telling)	3·0	5·0	3·5
Verbal direction and reminder (Telling)	5·0	8·0	3·0
Total verbal intervention	8·0	13·0	7·5
Total help received	20·0	19·0	10·5
Ratio: $\frac{\text{show}}{\text{tell}}$	$\frac{12\cdot0}{8\cdot0} = 1\cdot5$	$\frac{6\cdot0}{13\cdot0} = 0\cdot46$	$\frac{3\cdot0}{7\cdot5} = 0\cdot40$

Total help received

The 5-yr-olds received significantly less help than both the 4-yr-olds ($U = 22$, $p < 0\cdot05$) and the 3-yr-olds ($U = 23, p < 0\cdot05$). The 3- and 4-yr-olds did not differ significantly.

Ratio of "showing" to "telling"

Both the 5-yr-olds ($U = 5, p < 0\cdot002$) and the 4-yr-olds ($U = 6, p < 0\cdot002$) received a significantly higher proportion of verbal assistance than the 3-yr-olds; 4- and 5-yr-olds did not differ in this respect.

TABLE 2. RELATIVE SUCCESSES OF EACH AGE GROUP WITH "SHOWING" AND "TELLING"

		Age	
	3	4	5
Showing succeeds	40%	63%	80%
Telling succeeds	18%	40%	57%

The predominant mode of interaction between tutor and the 4-yr-old tutee has become verbal, and the principal form of that verbal interaction is a combination of reminding the child of the task requirements and correcting his efforts as he seeks to carry on. So while we can say that the tutor acts principally as a lure to the youngest children, she acts more as a verbal prodder and corrector for the 4-yr-olds. The number of direct interventions drops by half from the 3- to the 4-yr-olds. Note, however, that the sum of demonstrations, corrections, and directions is about equal for the 3- and 4-yr-olds, though the balance has shifted (Tables 1 and 2).

When we come to the 5-yr-olds, the median number of tutorial interventions per pupil drops again by half. Qualitatively speaking the best way of characterizing the tutor of the 5-yr-olds is principally as a confirmer or checker of constructions, the children now having firmly in mind the nature of the task.

In a word, the youngest children, although capable of recognizing the properties of a correct solution, had to be induced to try the task to learn through recognition of correct solutions. The tutor's role was to stimulate and to keep the goal before the child's eyes—not easy since the children had other notions of what could be done with the blocks. With the 4-yr-olds, already activated to construct, the tutor's task was more to help them recognize, usually by verbal marking, the nature of the discrepancy that existed between their attempted constructions and what was required by the task. It is this that shifts the balance from showing to telling as one goes from 3 to 4 yr. The 5-yr-old has recourse to the tutor only when he is experiencing difficulty or checking out a construction. The tutorial function, thus, withers away. Indeed, a tutor would be superfluous for a 6-yr-old.

It is in this sense that we may speak of a scaffolding function. Well executed scaffolding begins by luring the child into actions that produce recognizable-for-him solutions. Once that is achieved, the tutor can interpret discrepancies to the child. Finally, the tutor stands in a confirmatory role until the tutee is checked out to fly on his own. It is summed up in Table 3, where we see the number of acts the child can sustain between tutorial interventions rising steadily with age and experience.

TABLE 3. RELATIVE FREQUENCY OF INTERVENTIONS BY THE TUTOR EXPRESSED AS INTERVENTIONS PER NUMBER OF CONSTRUCTION OPERATIONS (BOTH ASSISTED AND UNASSISTED) PERFORMANCE BY EACH CHILD

	Age 3	 4	 5
Total construction operations	262	352	280
Total interventions	201	198	112
Operations per intervention	1·3	1·8	2·5

The 5-yr-olds performed significantly more operations per intervention than the 4-yr-olds ($U = 16, p < 0{\cdot}02$) who performed more than the 3-yr-olds ($U = 10, p < 0{\cdot}002$).

ANALYSIS OF TUTORING

Did the tutor manage to follow the pre-set rules? In 478 opportunities she conformed 86% of the time. She did so most frequently with the youngest children (92%) and less frequently with the 4-yr-olds (81%; $\chi^2 = 9{\cdot}1, p < 0{\cdot}01$). With the 5-yr-olds, her behaviour fell mid-way (86%) though the difference between this group and the others was not statistically significant.

The majority of her "errors" with the 4-yr-olds was due to a tendency to offer *more* help than allowed by the rules (27 out of 36 cases). A closer inspection of the contexts in which she "transgressed" reveals an interesting consistency. When, for example, she offered a block rather than asking the child to find one, she would invariably transgress in this way when the particular child had recently failed several times to follow or understand a more difficult type of instruction. She appeared to be changing the rules to take account of larger segments of behaviour than written into the "rules".

The fact that she committed most violations with the middle group suggests an interesting observation regarding the tutorial process. As we have already seen, the tutor's role with the youngest children was largely one of task induction. The child seldom moved more than one "step" away from the tutor in terms of constructive activity. She might provide him with material for construction which he would probably then assemble, but having done so, the odds were that he would not attempt anything more. In short, though she might have difficulty getting the 3-yr-old started and keeping his attention on the task she was seldom left in doubt as to what the child had done in response to her instructions. With the 5-yr-olds too, her task was relatively straightforward. The child soon learned the task constraints and conducted his efforts in an appropriate serial order. But, the "try it and see" behaviour of the middle group was much harder to interpret. With the 4-yr-olds, then, the tutor is faced with a great deal of relatively unstructured behaviour from a child who *initiates* most of the task activity himself. These are the ones most difficult to accommodate within a fixed set of tutorial rules.

This result leads on to the conjecture as to whether formal programmes of "individualized" teaching may be most difficult to realize at the most critical point—the mid-phase of learning. Given the "disordered" structure of this mid-phase one cannot always know that a child is in fact simply ignoring a suggestion, whether he is systematically misunderstanding it or what. To the extent that the learner is at sea, so too is the tutor, who faces difficulties in interpreting responses appropriately. Problem-solving activity often has a deep structure that may not be apparent, until a long sequence in process is near completion. The tutor often cannot recognize hypotheses underlying long sequences and in the "middle phase" there are often too many complexities for either man or machine programmes to take into account.

Where the human tutor excels or errs, of course, is in being able to generate hypotheses about the learner's hypotheses and often to converge on the learner's interpretation. It is in this sense that the tutor's theory of the learner is so crucial to the transactional nature of tutoring. If a machine programme is to be effective, it too would have to be capable of generating hypotheses in a comparable way. In tutoring, moreover, effectiveness depends not only upon the tutor and tutee modifying their behaviour over time to fit the perceived requirements and/or suggestions of the other. The effective tutor must have at least two theoretical models to which he must attend. One is a theory of the task or problem and how it may be completed. The other is a theory of the performance characteristics of his tutee. Without both of these, he can neither generate feedback nor devise situations in which his feedback will be more appropriate for *this* tutee in *this* task at *this* point in task mastery. The actual pattern of effective instruction, then, will be both *task* and *tutee* dependent, the requirements of the tutorial being *generated* by the interaction of the tutor's two theories.

The "scaffolding" process

We may now return to the beginning of the discussion. Several functions of tutoring—"scaffolding functions"—were hinted at in the introduction. We can now elaborate more generally upon their relation to a theory of instruction. What can be said about the function of the tutor as observed in this study?

1. *Recruitment.* The tutor's first and obvious task is to enlist the problem solver's interest in and adherence to the requirements of the task. In the present case, this often involved getting the children not only interested, but weaned from initial imaginative play with the blocks.

2. *Reduction in degrees of freedom.* This involves simplifying the task by reducing the number of constituent acts required to reach solution. It was N. Bernstein (1967) who first pointed to the importance of reducing the alternative movements during skill acquisition as an essential to regulating feedback so that it could be used for correction. In the present instances it involved reducing the size of the task to the level where the learner could recognize whether or not he had achieved a "fit" with task requirements. In effect, the "scaffolding" tutor fills in the rest and lets the learner perfect the component sub-routines that he can manage.

3. *Direction maintenance.* Learners lag and regress to other aims, given limits in their interests and capacities. The tutor has the role of keeping them in pursuit of a particular objective. Partly it involves keeping the child "in the field" and partly a deployment of zest and sympathy to keep him motivated. The children often made their constructions in order to show them to the tutor. In time, the activity itself became the goal—but even then, the older children often checked back.

One other aspect of direction maintenance is worth mention. Action, of course, tends to follow the line of previous success. There were instances, for example when subjects would work successfully (and apparently endlessly) on constructing pairs, rather than moving on from this success at a simpler level to trying out a more complex task—like the construction of a flat quadruple. Past success served to distract from the ultimate goal. The effective tutor also maintains direction by making it worthwhile for the learner to risk a next step.

4. *Marking critical features.* A tutor by a variety of means marks or accentuates certain features of the task that are relevant. His marking provides information about the discrepancy between what the child has produced and what he would recognize as a correct production. His task is to interpret discrepancies.

5. *Frustration control.* There should be some such maxim as "Problem solving should be less dangerous or stressful with a tutor than without". Whether this is accomplished by "face saving" for errors or by exploiting the learner's "wish to please" or by other means, is of only minor importance. The major risk is in creating too much dependency on the tutor.

6. *Demonstration.* Demonstrating or "modelling" solutions to a task, when closely observed, involves considerably more than simply performing in the presence of the tutee. It often involves an "idealization" of the act to be performed and it may involve completion or even explication of a solution already partially executed by the tutee himself. In this sense, the tutor is "imitating" in idealized form an attempted solution tried (or assumed to be tried) by the tutee in the expectation that the learner will then "imitate" it back in a more appropriate form.

In the introduction we said a few words about the subtlety of "modelling" an act that is to be "imitated". In fact, observed instances of "imitation" were all of a kind as to suggest that the only acts that children imitate are those they can already do fairly well. Typical was the following incident, involving a 4-yr-old.

> Tutor, noting that subject is constructing pairs quite easily, now takes two pairs and fits them together as a quadruple. Subject then takes the quadruple, disassembles it into two pairs, and hands these back to tutor. This in turn leads the tutor to a highly idealized version of constructing the quadruple: she now does it slowly and carefully, in contrast to a swift and casual construction of the constituent pairs. The child does not follow suit.

In fact, the study taught us little about imitation save that its occurrence depends upon the child's prior comprehension of the place of the act in the task. In all instances observed with these 30 children, there was not a single instance of what might be called "blind matching behaviour".

SUMMARY

3-, 4-, and 5-yr-olds were tutored in the task of constructing a pyramid from complex, interlocking constituent blocks. The results indicate some of the properties of an interactive system of exchange in which the tutor operates with an implicit theory of the learner's acts in order to recruit his attention, reduces degrees of freedom in the task to manageable limits, maintains "direction" in the problem solving, marks criticial features, controls frustration and demonstrates solutions when the learner can recognize them. The significance of the findings for instruction in general is considered.

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EFFECTS OF MATERNAL AND PEER SEPARATIONS ON YOUNG MONKEYS

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During the past decade numerous investigators have closely examined the behavioral reactions of young monkeys to physical separation from social attachment objects. Most studies have focused upon the consequences of maternal separation in rhesus macaques during their first 6 months of life. It has consistently been found that the infants respond to maternal separation with active protest and sometimes with subsequent depression and that during separation they exhibit marked decreases in levels of complex activities such as play (Seay, Hansen and Harlow, 1962; Seay and Harlow, 1965; Hinde, Spencer-Booth and Bruce, 1966; Spencer-Booth and Hinde, 1971; Abrams, 1970). Most subjects apparently return to preseparation baselines of activity following reunion with mother, although residual effects of the separations, e.g. extreme sensitivity to fear stimuli, have been found in some monkeys many months after reunion (Mitchell, Harlow, Griffin and Møller, 1967; Hinde and Davies, 1972; Suomi, Collins and Harlow, 1973; Young, Suomi, Harlow and McKinney, 1973). Several reviewers (Kaufman and Rosenblum, 1967; McKinney and Bunney, 1969; Harlow, Suomi and McKinney, 1970; Hinde and Spencer-Booth, 1971; Harlow and Suomi, 1974) have pointed out the similarity between these data and those reported for human anaclitic depression precipitated by separation from mother.

However, other researchers have examined the reactions of different monkey species to maternal separations and their findings have not always paralleled those from rhesus monkeys and human infant separation studies. For example, Kaufman and Rosenblum (1969) found that pigtail macaque infants essentially mirrored the rhesus response to maternal separation but bonnet macaque infants were scarcely affected by identical manipulations. Similarly, Seay and his colleagues (Preston, Baker and Seay, 1970; Schlottmann and Seay, 1972) reported different patterns of separation reaction for patas monkeys and Java monkeys, the former exhibiting primarily a change in type of play pattern in response to removal of mother, the latter reacting more in the fashion of rhesus and pigtail infants. Clearly, considerable species variation exists with respect to separation reaction, a fact which most investigators have attributed to species variation in strength and specificity of mother–infant attachment prior to separation.

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More recent data have disclosed that even among rhesus monkeys reactions to maternal separation are far from universal across individuals or situations (Suomi, in press; Young, McKinney and Lewis, in press). Furthermore, it has been demonstrated that mother–infant bonds are not the only simian relationships strong enough to produce adverse reaction to separation. Infants reared with and subsequently separated from peers (Suomi, Harlow and Domek, 1970) and/or surrogate mothers (Novak, 1973) have exhibited reactions as severe and debilitating as any seen following rhesus mother–infant separation.

In view of these facts, recent work in the study of social separation has been directed toward uncovering factors which determine and variables which predict the course and consequence of a given separation of a particular infant from any object of attachment. It has been found, for example that age of the subject at time of separation, form and intensity of attachment relationship and nature of social environment prior to separation, type and duration of social separation and social structure of reunion environment are variables which can profoundly influence the reaction of a young monkey to loss of an attachment object. These findings have been systematically discussed in reviews by Hinde and Spencer-Booth (1971), McKinney, Suomi and Harlow (in press) and Suomi (in press).

The following experimentation represents a continuation of research designed to examine factors which influence response to social separation in rhesus monkeys. Young monkeys were subjected to three consecutive 2-week separations, each producing an increasing degree of social isolation. The infants were first separated from their mothers by partitions which permitted limited physical contact through wide-gauge wire mesh and unlimited interaction with familiar peers. They were then denied all physical contact with their mothers by replacement of the mesh partitions with transparent plastic panels, and finally were separated from their familiar peers as well. Their behaviors were compared with those of a group of like-aged monkeys who had not been subjected to separations of any form. On the basis of previous data it was predicted that the experimental subjects would exhibit increasingly severe reactions to each separation and that clear differences in levels of behaviors of experimental and control monkeys would be found, even long after reunion.

METHOD

Subjects and procedure

The subjects were 8 rhesus monkeys (*Macaca mulatta*) assigned at birth to one of two groups, separation (*S*) or control (*C*). The *S* group contained 1 male and 3 females, all born within a 24-day period. The *C* group consisted of 2 males and 2 females born within a 15-day period. Immediately after birth each subject was housed with its mother in one of the living cages of a playpen apparatus (Hansen, 1966). This apparatus, illustrated in Fig. 1, was a living-experimental unit consisting of four 94 × 94 × 94 cm living cages surrounding a 152 × 152 × 76 cm play area. The 9 × 14 cm openings in each living cage permitted infant access to the play area but were too small to allow mothers to leave their respective living cages. The play area could be subdivided into four 76 × 76 × 76 cm compartments by inserting 76 × 76 cm partitions into formed slots. All subjects in each group were housed in the same playpen, so that beginning shortly after birth, each subject had unlimited access to not only its mother but also the other infants in its group as well as their mothers. The two playpens were located in different rooms during the study.

The design of the experiment is summarized in Table 1. When members of the *S* group reached a mean age of 180 days, the following separation procedure was initiated: first, the homecage

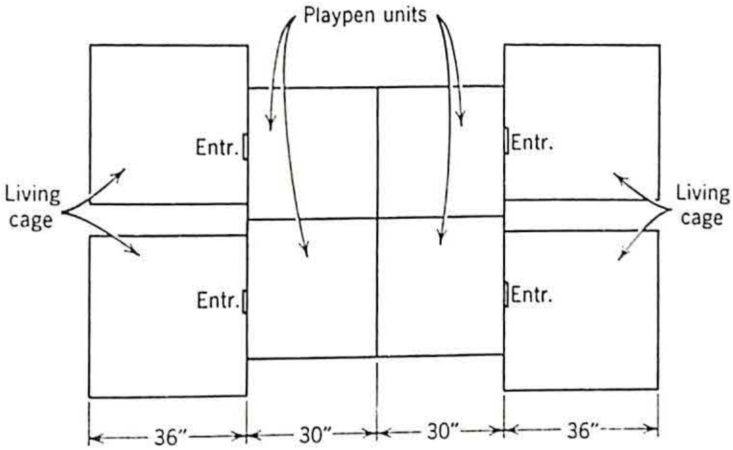

FIG. 1. The playpen apparatus.

TABLE 1. DESIGN OF THE PRESENT EXPERIMENT

Weeks of Age	0-26	27-28	29-30	31-32	33-39	40-46	47-52
Separation Group (S) (4 monkeys)	Mother-peer housing in playpen	Mesh separation from mother (S-M)	Transparent plastic separation from mother (S-P)	Transparent plastic separation from mother and peers (S-I)	Mother-peer housing in playpen	Mother removed; peer housing in playpen	Peer housing in playpen
Control Group (C) (4 monkeys)	Mother-peer housing in playpen	Mother-peer housing in playpen	Mother-peer housing in playpen	Mother-peer housing in playpen	Mother-peer housing in playpen	Mother-peer housing in playpen	Mothers removed; peer housing in playpen

openings leading to the play area were covered by 5 cm wire mesh. The experimental subjects were thus physically confined to the play area, separated by these partitions from their mothers who remained in their respective living units. Limited physical contact between mother and infant was permitted by the openings in the mesh which were of sufficient area to allow arms and legs to reach through to the other side. This condition, termed maternal separation–mesh (*S–M*), was maintained for a period of 14 days. The second stage, maternal separation–transparent plastic (*S–P*), immediately followed. Here, the mesh partitions were removed and replaced with transparent plastic panels, prohibiting all physical contact between mothers and infants. Like the first separation, this stage lasted a period of 14 days. Finally, the infant monkeys were physically separated from one another by insertion of transparent panels into the slots in the play area, confining each subject to the 76 × 76 cm quadrant adjacent to the living cage housing its mother. This period of mother and infant separation (*S–I*) was also 14 days long. All partitions were then removed, reuniting the subjects with their mothers and peers. Members of the C group were not subjected to separations of any form. Rather, they continued to interact with their mothers and fellow-group members.

When the mean age of the S group was 280 days, their mothers were removed from the apparatuses and housed in another part of the laboratory. Mothers were also removed from the control subjects' playpen unit, but due to space considerations within the laboratory at that time, this did not take place until their mean age was 330 days. Subjects in both groups continued to live in the playpen apparatuses until 360 days of age, at which point the study was terminated.

Data collection and analysis

Each subject was observed for a 5-min period 5 days per week, beginning at 12 weeks of age and continuing throughout the remainder of the study. During every observation period, durations of subject behavior falling into each of 10 predefined behavioral categories (duration categories) were recorded by one of two experienced observers, each of whom had previously been trained to a rigorous laboratory criterion of reliability. Behaviors encompassed by the categories and their operational definitions are listed in Table 2. In addition, a second set of behaviors was recorded during observations of *S* subjects. For these categories, also listed and defined in Table 2, presence or absence during each of the 20 15-sec intervals which comprised each 5-min observation period was recorded (modified frequency categories). All observation periods took place between the hours of 11:00 a.m. and 2:00 p.m. on each week day.

TABLE 2. OPERATIONAL DEFINITIONS OF BEHAVIORAL CATEGORIES

Duration Categories

Mother: ventral–ventral contact between mother and infant, or infant sitting within the embracing arms of the mother.

Mom huddle: any other physical contact with infant's own mother, or orientation toward mother within one body length.

Other mother: any physical contact with or orientation within one body length toward another adult female by infant.

Peer huddle: ventral–ventral or ventral–dorsal contact with another infant (the infant being scored on this behavior would have to have his ventral surface to the other infant).

Peer explore: tactile or oral manipulation of another infant.

Peer play: brief contact play, rough-and-tumble, or pursuit-avoidance play.

Infant reject: negative behavior shown toward another infant such as threat, aggression, or fear grimace.

Environment: tactile or oral manipulation of the cage.

Disturbance mobile: distress vocalizations accompanied by locomotion and/or stereotypy (repetition of a locomotive pattern for three or more cycles).

Disturbance immobile: distress vocalizations accompanying self-clasping and/or rocking and huddling.

Modified Frequency Categories

Screech: High intensity vocalization resembling a scream.

Coo: Drawn-out dove-like cry in a variety of pitches.

Fear Grimace: Facial expression resembling a "smile" produced by the lips being pulled back and exposing the teeth.

The data were analyzed in two stages. First, for each duration category, subject scores were summarized over 2-week blocks and means calculated. Nine of these 2-week blocks were then examined: the 2-week period prior to the mesh separation (24–25 weeks of life), the period of mesh maternal separation (26–27 weeks), the period of transparent plastic maternal separation (28–29 weeks), the period of infant–infant separation (30–31 weeks), the three 2-week periods immediately following reunion (32–33, 34–35, and 36–37 weeks) the 2-week period immediately following removal of the subjects' mothers (40–41 weeks for *S* subjects, 47–48 weeks for *C* subjects), and the final 2-week period of the study (51–52 weeks). For each category, means for each subject for each time period were subjected to a two-way repeated-measures analysis of variance, with subject group (separation vs control) as the independent variable and time period as the repeated measure. For those categories whose analyses yielded significant time period effects and/or significant interactions, Duncan New Multiple Range tests were applied to the appropriate means. Statistical significance was arbitrarily defined as $p < 0{\cdot}05$.

The second stage of data analysis examined more closely the reactions of the *S* subjects to the various separations. For each duration category, scores from each of the *S* subjects were summed over six time periods: the first 2 and the last 3 days of each of the three experimental separations (*S–M*, *S–P*, and *S–I*). In addition, comparable scores were summed over the same time periods for each of the modified frequency categories. Then, for every category, means per session for every subject were calculated for each time period, and these means were subjected to two-way repeated-measures analyses of variance, with separation period (first 2 days vs last 3 days of separation) and form of separation (*S–M* vs *S–P* vs *S–I*) as repeated measures. For those categories whose analyses yielded significant separation effects and/or interactions, Duncan tests were subsequently applied to the appropriate means.

RESULTS

The results of this study indicated that the experimental subjects' ongoing behavior patterns were grossly affected by the various maternal and infant separations. In contrast to control monkeys who exhibited gradual monotonic changes in behavioral levels over time, members of the separation group exhibited sharp changes in levels of most behaviors following the initial mesh separation which were exaggerated in the subsequent *S–P* and *S–I* separations. Within each separation period there were clear indices of "protest" and "despair" reactions. Levels of most positive behaviors returned to control levels soon after reunion with mother. Finally, both separation and control subjects exhibited major and similar changes in levels of behavior following the permanent removal of their mothers near the end of the study.

Figures 2 and 3 illustrate the mean scores of the duration categories for separation and control subjects during each of the 2-week periods examined in the statistical analyses. The results of these analyses of variance and their accompanying Duncan tests are presented in Table 3. During the initial baseline period, the two groups of subjects did not differ significantly on any measure taken, not a surprising finding since both groups to this point had been reared similarly. During the mesh separation, however, clear group differences emerged in several behavioral categories. *Mother* behaviors were higher for separated subjects than for control subjects, even though their contact was limited to interaction through wire mesh. In contrast, separated

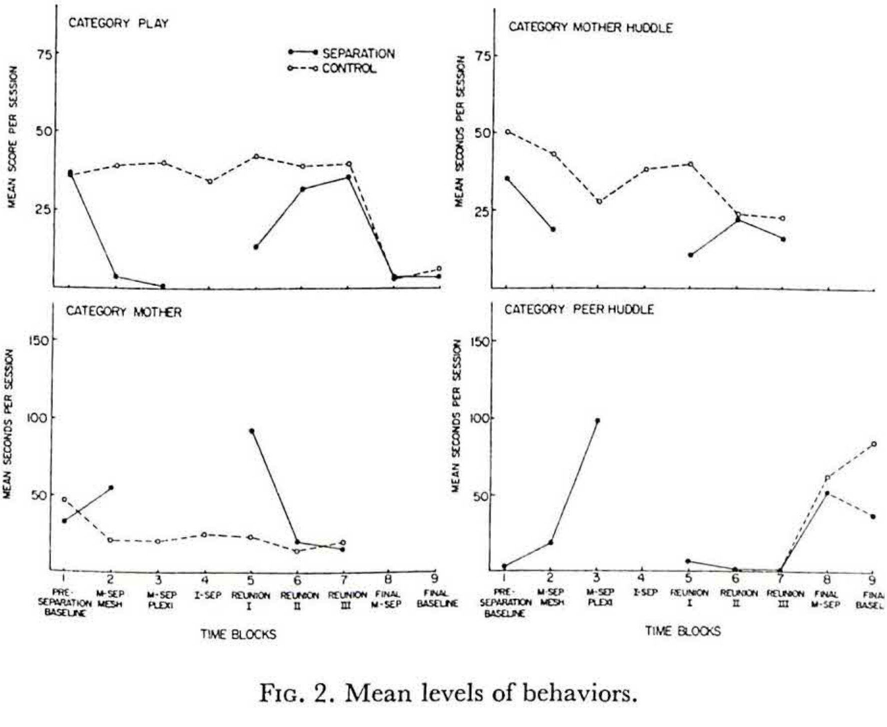

FIG. 2. Mean levels of behaviors.

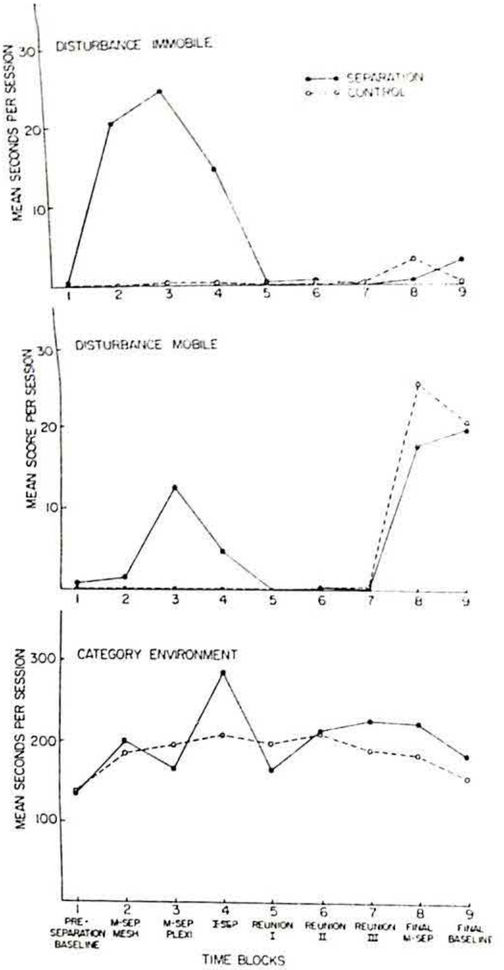

FIG. 3. Mean levels of behaviors.

subjects' levels of *play* dropped almost to zero, significantly below not only control levels but also their own preseparation baselines. In addition, *disturbance immobile* behaviors rose significantly over baseline levels in separated but not control subjects. No other significant differences between separated and control subjects during this time period were disclosed by the analyses. Across both groups of subjects, *environment* behaviors increased over baseline levels, a finding consistent with normal patterns of maturation.

Alteration of behavior was significantly greater for the separated subjects during the period of transparent plastic separation from their mothers. Here, the behaviors of *mother, mom huddle* and *other mother* could not take place due to the partitions. Play, which could in theory occur among separated subjects, failed to appear at all, while remaining at high levels among control subjects. The separated subjects' mean scores in this period for *peer huddle* and *disturbance immobile* were the highest for either group during any of the time periods over the entire study.

Contrary to expectations, experimental subjects did not exhibit qualitatively more severe reactions to the *S–I* separations than they did to maternal separation

TABLE 3. RESULTS OF OVERALL ANOVA's AND DUNCAN TESTS

Category	Group[a]	Time Block[b]	G × T[b]	Duncan Tests
Mother	0·43	8·09***	4·72***	5 > 1, 2 > 3, 4, 6, 7, 8, 9; *S*5 > all other means; *S*2 > *C*2–9, *S*3–9; *C*1 > *C*7–9, *S*3, 4, 8, 9
Mom huddle	1·23	5·65***	1·31	1 > 3, 4, 5, 7, 8, 9; 2, 5, 6, 7 > 8, 9
Other mother	1·22	1·49	0·78	No Duncan tests
Infant reject	1·67	4·02**	1·50	8, 9 > 1–7
Peer explore	1·16	2·10	0·71	No Duncan tests
Peer huddle	1·38	15·43***	8·00***	3, 8, 9 > 1, 2, 4, 5, 6, 7; *S*3 > *S*1, 2, 4–9, *C*1–8; *C*9 > *S*1, 2, 4–9, *C*1–7; *C*8 > *S*1, 2, 4–7, *C*1–7; *S*8 > *S*1, 2, 4–7, *C*1–7; *S*9 > *S*1, 4, 6, 7, *C*1–7
Play	5·95*	10·95***	4·81***	*C* > *S*; 1, 6, 7, > 2, 3, 4, 8, 9; 2, 3, 5 > 8, 9; *C*1–7, *S*1, 6, 7, > *C*8, 9, *S*2, 3, 4, 8, 9
Environment	0·83	7·09***	2·19**	4 > 2, 3, 5, 6, 7, 8, 9 > 1; 6 > 9; *S*4 > all other means; *C*1, *S*1 > *C*2–8, *S*2, 6–9
Dist. mobile	0·90	3·26**	0·30	8, 9 > 1–7
Dist. immobile	844·15***	38·52***	41·86***	*S* > *C*; 2, 3 > 4 > 1, 5–9; *S*3 > *S*2 > *S*4> *C*1–9, *S*1, 5–9

Tables numbers are *F*-scores. Abbreviations for Duncan tests: S = Separated, C = Control, 1–9 = respective time blocks. [a] $d.f. = 1/6$, [b] $d.f. = 8/48$, * $p < 0{\cdot}05$, ** $P < 0{\cdot}01$, *** $p < 0{\cdot}001$.

by itself. *Play* and *peer huddle* could not occur, but were more than replaced by significantly elevated levels of environmentally directed behavior. *Disturbance immobile* was higher than during baseline and postseparation time periods but slipped significantly below levels recorded during the prior two separation time periods.

Closer examination of the time course of behavioral change during each of the three separations yielded interesting findings. These data are graphed in Figs. 4 and 5, and the results of the statistical analyses are summarized in Table 4.

First, it is clear that discernible protest–despair sequences of reaction accompanied each form of separation, particularly the latter two. *Disturbance mobile,* a measure of active protest, was significantly greater during the first 2 days of the separations than it was during the last 3 days of each separation. Also, levels of *coo* and *screech* were elevated during the first 2 days of each separation, while fear grimacing was greater for the first 2 days of the *S–M* and *S–I* separations. Contrastingly, behaviors indicative of despair activity associated with depression, *disturbance immobile,* were far more evident during the last 3 days of the separations than they were during the first 2 days. Furthermore, during the *S–P* and *S–I* separations, *environment* behaviors dropped during the last days of each respective separation, consistent with previous reports of characteristic inactivity during despair reactions to separation in monkey subjects.

Second, comparisons across separations indicated that reactions to the *S–M* separation were milder than those to the *S–P* and *S–I* separations. In particular, *environment* and *play* behaviors increased during the *S–M* separation, and both disturbance categories occurred at lower levels during the first 2 and last 3 days of the

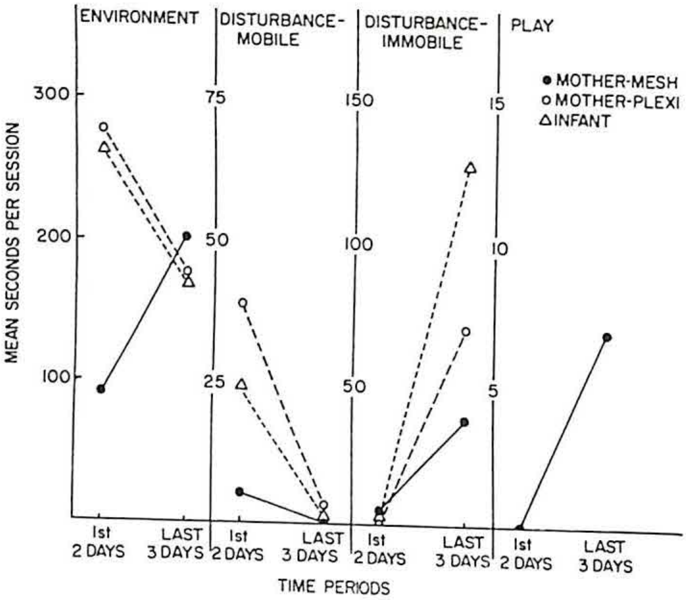

FIG. 4. Mean levels of duration behaviors, separation periods.

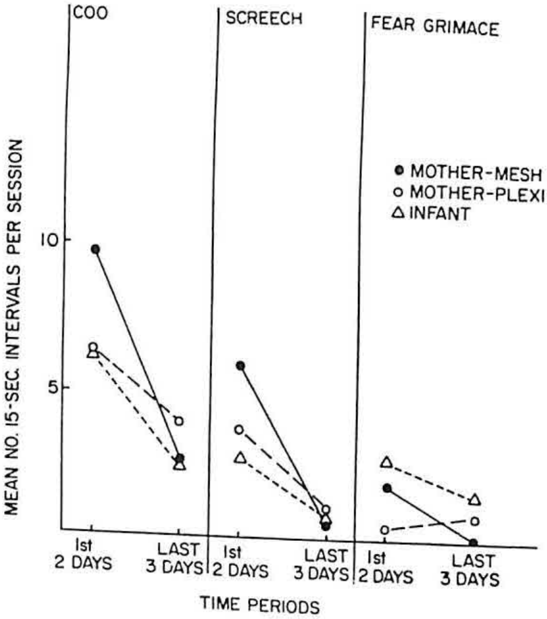

FIG. 5. Mean levels of modified frequency behaviors, separation periods.

S–M separation than during the latter two separations. Differences in severity between the *S–P* and *S–I* separations were less clear-cut. For example, the *S–P* separation yielded higher levels of *disturbance mobile*, while the *S–I* separation yielded higher levels of *disturbance immobile* behaviors.

During reunion periods levels of behavior for *S* subjects returned to those of *C* monkeys at differential rates. For *mom huddle*, *other mother*, *peer explore*, *peer huddle*, and both disturbance categories, separation and control levels did not differ significantly

TABLE 4. RESULTS OF SEPARATION ANOVA'S AND DUNCAN TESTS

Category	Separation[a]	Time[b]	S × T[a]	Duncan Tests
Peer explore	0·30	1·33	1·10	No Duncan tests
Peer huddle	6·22	6·87	2·90	No Duncan tests
Play	11·76*	11·76*	11·76*	1 > 2, 3; B > A; 1B > all other means
Environment	3·99	2·59	12·33**	2A, 3A > 1A
Dist. mobile	2·45	15·04*	2·60	A > B (2A > 1B, 2B, 3B)
Dist. immobile	14·69**	68·78**	10·94**	3 > 1; B > A; 3B > all other means; 3B > 1A, 2A, 3A
Coo	0·64	51·29**	4·05	A > B
Screech	0·97	34·55**	4·05	A > B
Fear grimace	2·50	5·61	7·91*	3A > 1B, 2A, 2B; 1A > 1B

Tables numbers are *F*-scores. Abbreviations for Duncan tests: 1 = *S–M* Separation, 2 = *S–P* Separation, 3 = *S–I* Separation; A = first days of Separation, B = last 3 days of Separation. [a] *d.f.* = 2/6, [b] *d.f.* = 1/3, * $p < 0.05$, ** $p < 0.01$.

during any of the three reunion time periods. Contrastingly, *play* and *environment* were depressed for the separated subjects until the second reunion period. Also, immediately following reunion, the level of *mother* behavior in the separated subjects was the highest for either group during any time period throughout the study. By the third 2-week period after reunion no significant differences between separated and control subjects in levels of any behavioral category were disclosed by the analyses.

Finally, both groups of subjects exhibited similar reactions to the permanent removal of their mothers from the apparatus, even though the time of removal differed between the two groups by 50 chronological days. Both sets of subjects showed significant increases over previous levels of *infant reject, peer huddle* and *disturbance mobile,* as well as a significant decrease in *play* behavior. These levels were generally maintained until the end of the study. No differences between groups achieved statistical significance, with one exception. Control group levels of *peer huddle* were significantly higher than those of the separated subjects during the final 2-week period of data collection.

DISCUSSION

The results of this study were relatively consistent with predictions: experimental subjects exhibited discernible reactions to each of the three separations, the reactions generally followed the course of protest–despair, and most behaviors returned to control levels following reunion. However, differences among the separations in severity of reaction were not as clear-cut as had been expected, nor were any major differences in reaction to final maternal separation disclosed between separated and control monkeys. These findings merit some discussion.

Of the three separations, the *S–M* clearly produced the mildest reaction among the experimental subjects, as was predicted, although it yielded patterns of disturbance behaviors consistent with the protest–despair sequence found in previous mother–infant separation studies. Specifically, active disturbance was highest immediately following separation, whereas *disturbance immobile* behaviors reached their peak levels near the end of the separation period. However, both *environment* and *play* behaviors increased during the period of mesh separation, contrary to "typical" despair found in previous studies of young monkeys. We believe the basis for these results lay in the data from the *mother* category of behavior. During the mesh separation the experimental subjects' level of this category rose not only over that of control subjects but also over their own preseparation baseline, even though mother-directed behaviors had to take place through mesh partitions. Much previous work has demonstrated that opportunity for contact with the mother promotes infant activities such as exploration and play (Harlow and Harlow, 1965).

The importance of physical contact with mother for other infant activities was underscored by the data obtained when all physical contact with mother was denied. The infants again exhibited clear protest followed by even clearer despair. Both *disturbance mobile* and *disturbance immobile* behaviors reached their highest 2-week mean levels, while *environment* dropped to its lowest level and play disappeared. Such behavioral patterns are consistent with most previous reports of infant activity following maternal separation in rhesus monkeys, even though the present subjects had been partially limited in their access to mothers 2 weeks prior.

The protest–despair sequence of reaction was repeated during the 2-week period of *S–I* separation. However, although all physical contact with mothers and infants was prohibited, the experimental subjects did not show qualitatively more severe reactions. One explanation for this finding may be that by the time of the *S–I* separation the infants had been exposed to various social restrictions for a 1-month period. Previous work has indicated that some infants tend to recover from effects of maternal separation well within a period of a month (Kaufman and Rosenblum, 1967); it may be that the experimental subjects had adjusted somewhat to the condition of separation from attachment object by the time the *S–I* procedure was initiated.

Nevertheless, clear protest–despair reactions were recorded during *S–I* separation, just as they had been during the two previous separations. As was pointed out previously, not all social separations in primate subjects yield depressive-like despair activity. However, in cases where prior bonds seem strongest, a protest–despair sequence is most likely to occur, independent of the type of attachment bond—mother, inanimate surrogate, or peer—severed by the separation manipulation. This is true of rhesus and pigtail macaques, chimpanzees (van Lawick-Goodall, 1973) and human infants, and conceivably could be true for species such as bonnet macaques were appropriate bonds developed and severed (Harlow and Suomi, 1974).

The removal of mothers near the end of the study produced significant changes in levels of behaviors for both groups of subjects, although the patterns were not identical to those exhibited by experimental subjects following the three earlier separations. Specifically, the monkeys exhibited protest but little or no despair in reaction to permanent maternal separation, although play was depressed and both passive peer contact and aggression increased significantly during both postseparation time periods. This form of reaction to separation was strikingly similar to that reported to result from peer separation of rhesus monkey adolescents (McKinney, Suomi and Harlow, 1972; Bowden and McKinney, 1972) and is somewhat predictable in light of normative development data collected on mother–infant pairs.

Normally, the initially intense rhesus mother–infant attachment bond wanes considerably during the last fourth of the first year of life (Harlow and Harlow, 1965; Hansen, 1966). If the present subjects had relatively normal relationships with their mothers and the data suggest that they did, particularly the control subjects, then the relatively mild reactions exhibited by them are consistent with these normative data.

The finding that separation and control groups showed essentially identical reactions to removal of mother is somewhat at odds with data previously collected at this laboratory. Young *et al.* (1973) reported that separations early in life tended to exaggerate reactions to similar separations later in life. On this basis one might predict that the present experimental monkeys would show more severe responses to removal of mother than control monkeys as a result of their earlier separations. However, the data did not support such a prediction. The fact that Young *et al.*'s monkeys were older than the present subjects and were exposed to brief, repetitive peer separations rather than having their mother removed permanently may account for the different findings across the two studies.

It must be pointed out that certain deficiencies in the experimental design necessitate some restraint in interpretation of the present data. Specifically, limitations on number of subjects available permitted only one control group of four monkeys; ideally, appropriate controls might enable one to determine the precise contribution of each form of separation to the overall constellation of experimental subjects' reactions. In addition, the fact that the mothers of separated and control subjects were removed at different points chronologically, clouds interpretations of the findings that their reactions, despite differential early experiences, were essentially identical.

SUMMARY

Rhesus monkeys reared with mothers and peers for the first 6 months of life were subjected to three consecutive 2-week periods of social separations, progressively increasing the degree of social isolation for the infants. During each period of social separation—mesh permitting physical contact with mothers, physical but not visual separation from mothers but unlimited access to peers, and finally physical separation from both mothers and peers—clear patterns of protest and despair were recorded. Reactions to mesh separations were mild relative to the latter two separations, both equally debilitating. Following reunion, separated subjects returned to behavior patterns similar to those of nonseparated control monkeys. Later in the study mothers were removed permanently from the homecages of all subjects, and all subjects reacted with protest and cessation of play activity. However, there was little evidence of despair and previously separated and control monkeys reacted in similar form despite their different early histories.

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MINOR PHYSICAL ANOMALIES AND INHIBITED BEHAVIOR IN ELEMENTARY SCHOOL GIRLS

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A set of 18 minor physical anomalies has been identified with Down's Syndrome, commonly referred to as mongolism. Most of the general population, however, possess two or more of these anomalies. A series of studies (Halverson and Victor, 1974; Quinn and Rapoport, 1974; Waldrop, Pedersen and Bell, 1968; Waldrop and Goering, 1971; Waldrop and Halverson, 1971) has demonstrated that variation within the non-clinical range is associated with an important dimension for young males. This dimension represents fast moving, impulsive, clumsy behavior at one extreme and attentive, controlled, well-coordinated behavior at the other extreme. In other words, there is evidence of a genetic or congenital contributor to several aspects of child behavior that are important in basic psychological research on attention, pace, and impulse control, not just a contributor to relatively rare clinical conditions. The minor physical anomalies might indicate an unrecognized mediator of associations found in field studies between any other psychological characteristic and attention, pace, and impulse control. The conditions associated with anomalies might be contributing unrecognized variation in response of child subjects to experimental conditions.

In all likelihood, the same factors operating in the first weeks of pregnancy influence both the occurrence of the morphological aberrations and the predisposition to problem behavior. Quinn and Rapoport (1974) found that the number of anomalies was related to either the father's history of having been hyperactive, or to the mother's bleeding during the first trimester. They argue that the findings provide evidence for a genetic model that may be mimicked (phenocopied) by an insult early in pregnancy.

Since most of the anomalies are present at birth and the number of anomalies is known to be stable from birth to school age, their incidence points not only to a congenital basis of behavior, but also to possible early detection of variation in a behavioral dimension. The fact that, for males, there is only a small number of false positives in using anomalies to predict fast-moving, impulsive play indicates considerable promise for an early intervention program.

The list includes the following physical characteristics: fine electric hair, two

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or more hair whorls, head circumference out of normal range, epicanthus, hypertelorism, malformed ears, asymmetrical ears, soft pliable ears, low seated ears, no ear lobes, high steepled palate, furrowed tongue, single transverse palmar crease, curved fifth finger, third toe longer than second, partial syndactalia and a large gap between the first and second toes. A complete description can be found in Waldrop and Halverson (1971).

While associations of anomalies with behavior variation in boys has been striking and consistent, the behavioral correlates of anomalies for girls have not been clear. Data from an elementary school study (Waldrop and Goering, 1971) showed that hyperactive, impulsive, disruptive behavior and multiple minor physical anomalies were associated for boys but not for girls. One study (Waldrop *et al.*, 1968) showed that, for preschool girls, the presence of multiple minor physical anomalies was associated most strongly with fast-moving, impulsive play and second most strongly with inactivity, perseveration, intractability and lack of involvement with peers. In a second study using another sample of preschoolers (Waldrop and Halverson, 1971) high anomaly scores for girls were associated strongly and consistently with inhibition, fearfulness, staring vacantly, low peer involvement and lack of rhythm. Girls with high anomaly scores tended to have problems with control (too much or too little), with inattentiveness and with coordination.

In reviewing studies of behavior disorders in childhood, Anthony (1970) pointed out that most efforts to classify behavior disorders have resulted in distinguishing two groups: the anxious, neurotic, inhibited and the acting out, rebellious, aggressive. Inhibited, fearful behaviors were more likely to be characteristic of girls than aggressive, hyperactive behaviors. Macfarlane, Allen and Honzik (1954), in their study of behavior problems of normal children, found problems of excessive shyness to have a significantly greater incidence among girls between ages 3 and 13 than among boys.

Since minor physical anomalies appear to be associated with a major problem that is characteristic of boys and one that shows gradations beyond clinical samples into the general population, it is reasonable to expect an association of anomalies with the most salient problem of girls, that is, with inhibition. As stated earlier, however, conflicting relations between anomalies and inhibition have been reported. These were based on studies of young preschool girls who showed normal variations in impulse control. The purpose of the present study is to clarify the association between anomalies and inhibition in contrast groups selected for extremes of inhibition from a population of girls attending a public elementary school.

The principal hypothesis of this study is that elementary school girls who are inhibited, fearful, inattentive and socially inept will have a higher number of minor physical anomalies than elementary school girls who are spontaneous, outgoing, attentive and socially at ease. This hypothesis is based on behavioral correlates of anomalies among one sample of preschoolers and on literature describing troubled girls.

In a previous study of $7\frac{1}{2}$-yr-olds (Waldrop and Halverson, 1971) both low I.Q. and poor coordination were related to the presence of multiple minor physical anomalies. If in this study either coordination or I.Q. were found to relate both to anomalies and to inhibition, it would be important to know whether either I.Q.

or coordination mediated the proposed relation between anomalies and inhibition.

The possibility that other variables might mediate the proposed relation between anomalies and inhibition was also considered. For this reason the following were included in the investigation; cognitive variables: verbal and mathematic achievement scores; family variables: number of siblings, education of mother, and whether or not there was a father in the home; physical variables: height, weight, and obesity; and a general behavior variable: the average number of days per year absent from school.

METHODOLOGY

Subjects

The subjects were 93 girls in grades kindergarten through sixth grade. Forty of the 93 children were selected by their teachers as being among the most inhibited, inattentive, fearful and socially inept in their classes. These children were called the inhibited group for brevity. The teachers selected 53 girls as being outgoing, spontaneous, attentive and socially at ease. These are called the outgoing group. Conners (1969), among others, has found that teachers can reliably select children who are the extremes on some behavioral dimension. Seven of the inhibited group and 11 of the outgoing group were Negroes. The others were Caucasians. In general, the students were lower middle class. The median education of the mothers in the sample was eleventh grade. The school served a stable community of 25,000.

Procedures

At a faculty meeting attended by 18 of the 19 classroom teachers, a brief description of the study was presented. The hypothesis that multiple minor anomalies would be associated with inhibition was not mentioned at this meeting. Each teacher present was asked to write, each on a separate card, the names of girls in his or her class who would best fit the following descriptions:

(1) In the category of *pace and movement*—a girl who was not vigorous; tended not to move about; was not rhythmical; was hesitant and cautious about attacking anything perceived as a barrier.

(2) In the category of *awareness and interest*—a girl who spent time vacantly staring; had poor speech; showed low motivation and interest; sometimes seemed unaware of where she was or where she was going.

(3) In the *interpersonal category*—a girl who was not involved with peers; not friendly with peers; did not seek admiration; stayed close to teacher; talked less frequently than others with peers and with teacher; on the playground tended to stand and watch.

(4) In the *emotional category*—a girl who was not excitable; frequently seemed to be both chronically and reactively fearful.

These general descriptions of the type of girl to be selected were based on the results from a previous study (Waldrop and Halverson, 1971).

The teachers were then asked to write on the reverse side of the cards the behavioral cues that prompted each choice. There were 18 classroom teachers, two or three for each grade one through six, and one kindergarten teacher who taught two sessions. Seven teachers named three girls each, eight teachers named only two and three teachers named only one; thus, there were 40 girls who made up the inhibited group. Whenever a teacher named more than one girl, he or she was asked to distinguish between the one considered most inhibited, second most inhibited and, where applicable, third most inhibited.

After the cards were gathered, each teacher was asked to write, each on a separate card, the names of girls in his or her class who were socially at ease, spontaneous, attentive, and outgoing. The 54 girls so named made up the outgoing group. Again each teacher was asked to write on the reverse side of the card the behavioral cues that prompted each choice.

The physical education teacher agreed to evaluate the children participating in the study on inhibition and coordination. He had no prior knowledge regarding how or why the total sample had been selected. Each child's name was written on two different cards and the two stacks of cards were given to the physical education teacher. He sorted one stack into five piles, representing the way he would order the children from the most inhibited, socially inept to the most spontaneous and outgoing. The second stack was ordered from the least well coordinated to the best coordinated. He reported he was unable to make more than five divisions for each dimension. In essence, he rated each of the 93 girls on both inhibition and coordination, using a 5-point rating scale.

The person who examined the children for anomalies had established acceptable inter-observer reliability in previous studies (*r*'s from 0·70 to 0·91). The examiner had no previous knowledge of any of the children and saw their behavior only during the few minutes it took for each examination. Even clinically hyperactive children are known to be quiet during a novel situation when they are alone in the presence of a strange adult. (Huessy, 1967). Most of the girls were quietly curious.

All other data were gathered from school records after the examination. Two anomalies were omitted in this study: (a) "fine electric hair" because 18 of the 93 subjects were Negroes, and (b) "more than one hair whorl," because in the time allotted it was not feasible to undo hair braids. Negroes and Caucasians were not differentiated in any analyses because there were no significant differences in the number of anomalies.

The mean rating of inhibition (as done by the physical education teacher) for the inhibited group (so designated by the classroom teachers) was significantly higher than the mean rating of inhibition for the outgoing group. For the inhibited group: $\bar{X} = 3{\cdot}53$, $S.D. = 0{\cdot}91$; for the outgoing group: $\bar{X} = 2{\cdot}90$, $S.D. = 1{\cdot}08$, $t = 3{\cdot}00$, $d.f. = 86$, $p < 0{\cdot}005$. Thus, the teachers' distinction between inhibition and outgoingness has meaning outside the classroom situation. This relationship between the two sources was obtained in spite of the fact that the physical education teacher saw different kinds of behaviors in a different setting and had far less time per child available for observations and interactions.

Elementary school girls chosen by their teachers as being inhibited, fearful, inattentive and socially inept had significantly more minor physical anomalies than did those girls chosen by their teachers as being outgoing, attentive, spontaneous and socially at ease. The girls considered most inhibited had higher anomaly scores than those considered second most inhibited and those considered second most inhibited had higher anomaly scores than those considered third most inhibited. The

TABLE 1. MEAN ANOMALY SCORE COMPARISONS

Part 1. Between Outgoing Group and Inhibited Groups

	N	$\bar{X}$	$S.D.$	't' with outgoing group	$d.f.$	p
Outgoing group	53	3·38	1·71			
Subgroup 1 (most inhibited)	18	5·33	1·92	3·83	69	$< 0·0005$
Subgroup 2 (second most inhibited)	14	4·71	1·62	2·70	65	$< 0·005$
Subgroup 3 (third most inhibited)	8	4·00	1·41	1·12	59	*n.s.*
Total inhibited group	40	4·85	1·80	3·98	91	$< 0·0005$

Part 2. Between Inhibited Subgroups

Between Groups	't'	$d.f.$	p
1 and 2	0·99	30	$< 0·10$
2 and 3	1·07	20	$< 0·10$
1 and 3	1·97	24	$< 0·05$

girls in the first two of the three subgroups had significantly higher anomaly scores than did those chosen as outgoing and spontaneous. The eight girls considered third most inhibited did not have significantly ($p < 0·05$) more anomalies than the outgoing group. Subgroup one was significantly ($p < 0·05$) different from subgroup three.

Figure 1 shows the frequency distribution of the anomaly scores for the inhibited group compared with the frequency distribution for the outgoing group. It is of interest to note than only 8% of the outgoing group had anomaly scores more than one standard deviation from the mean, whereas 33% of the inhibited group had anomaly scores that high.

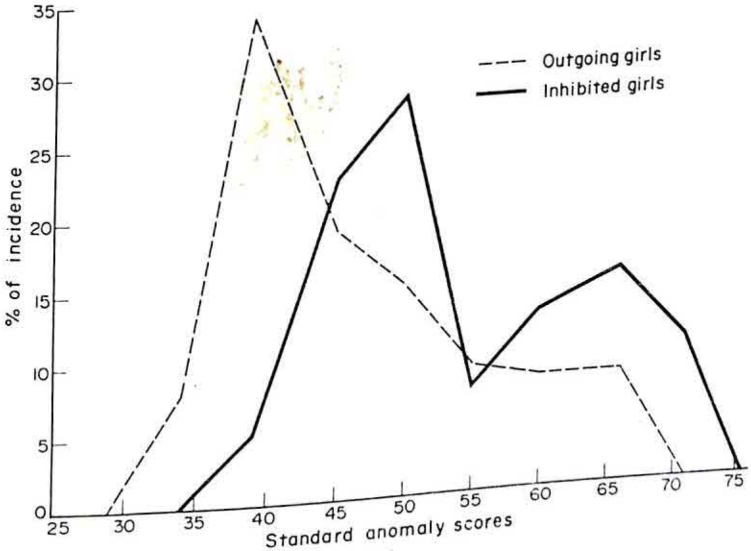

FIG. 1

Table 2 shows the correlation of the anomaly score with all the other variables for which there were scores. As was predicted, both I.Q. and ratings of coordination did correlate significantly with the total anomaly score. Average number of absences per year was also significantly correlated with anomalies, but at close to the borderline 0·05 level.

Table 2. Correlations of anomaly score with other variables

Variable	N	r with anomalies
I.Q.	39	−0·39**
Verbal achievement	83	−0·19
Math achievement	82	−0·16
Average number of absences	71	0·23*
Number of siblings	87	−0·11
Education of mother	82	−0·10
Height percentile for age	93	0·10
Weight percentile for age	93	0·06
Obesity	93	0·05
Coordination	88	−0·27**

** $p < 0{\cdot}01$. * $p < 0{\cdot}05$.

The mean anomaly score for the children who had no father in their respective homes was not significantly different from the mean anomaly score for the children who did live with their fathers.

The inhibited group, when compared with the outgoing group, had: (a) significantly lower I.Q.'s, (b) significantly lower ratings of coordination and (c) a higher rate of absenteeism.

Results of these tests of mean differences are shown in Table 3.

Table 3. Other significant differences between inhibited and outgoing groups

	Inhibited Group		Outgoing Group				
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	't'	$d.f.$	p
I.Q.	92·03	13·40	107·46	12·05	3·68	38	< 0·005
Coordination	2·80	0·96	3·66	1·28	3·74	88	< 0·0005
Days absent per year	21·97	17·49	10·25	6·76	3·52	35*	< 0·01

*One half the actual *d.f.* because of non-homogeneity of variance.

Analyses of covariance showed that the mean differences in the anomaly score between the inhibited group and the outgoing group held true over and above those differences that could be expected because of: (a) I.Q. ($F = 7{\cdot}94$, $p < 0{\cdot}01$ for 1 and 29 *d.f.*), (b) poor coordination ($F = 9{\cdot}17$, $p < 0{\cdot}01$ for 1 and 85 *d.f.*) and (c) average number of absences per year ($F = 9{\cdot}75$, $p < 0{\cdot}01$ for 1 and 67 *d.f.*).

The behavioral cues used by teachers to classify children were categorized in terms of those thought relative to the following types of behaviors: emotional, interpersonal, attentional or motivational, and physical. Table 4 provides a list of the cues used for the selection of the inhibited group and, alongside, the contrasting list that was used for the selection of the outgoing group. No cue was repeated when used for more than one girl.

TABLE 4. BEHAVIORAL CUES USED IN THE SELECTION OF TWO GROUPS

Inhibited Group	Outgoing Group
Emotional Behaviors	
Fearful, shy, withdrawn	Always happy
Flat or sad affect	Always smiling and joking
Low self-concept	Very pleasant child
	Enjoys the classroom
Interpersonal Behaviors	
Little talking	Makes conversation easily
Tends to be a loner	Great talker
Not a group participant	Outspoken
Feels no one likes her	Many friends
	Well liked
	Friendship sought by others
	Well liked by both boys and girls
	Gets along well with peers
	Good leader
	Eager to please
	Helpful
	Eager to participate
Attentional and Motivational Behaviors	
Inattentive	Very interested in school
Staring vacantly	Will try any activity
Low interest and motivation	Aware of everything that's going on
	Completes work
	Works fast
	A steady worker, a good worker
Physical Behaviors	
Mannerisms such as shrugging, turning head, "nervous"	
High absentee rate	

Judged from the behavioral cues, it would seem that the one most salient reason for being considered inhibited was nonsociability. The group of girls having the higher number of anomalies were seen as being not social, low in speaking, low in responding and were not well liked by their peers. In contrast, based on previous studies, the most salient behavior for boys with more than an average number of anomalies was being hyperactive.

DISCUSSION

The principal hypothesis of this study was substantiated, in that the presence of multiple minor physical anomalies was significantly related to inhibited, fearful, socially ill at ease behavior in elementary school girls.

The interesting question is why the presence of multiple minor physical anomalies should be associated with hyperactive behavior in preschool and elementary school boys and with hypoactive behavior in preschool and elementary school girls. There could be a biological basis for the sex differences in the behavioral correlates of the anomalies. There could also be differences in the socialization processes that take place for high anomaly boys as compared with high anomaly girls.

It is possible that the fundamental hormonal and central nervous system structures involved in the control of motor and expressive behavior may differ for males and females. A genetic or teratogenic agent operating during pregnancy could have a different effect because of basic differences in the nature of target systems. Consistent with this possibility is the fact that there are known sex differences in vulnerability to complications of pregnancy and delivery (Naeye *et al.*, 1971; Pasamanick, Rogers and Lilienfield, 1956; Toivanen and Hirvonen, 1970).

It would be of interest to know whether or not there are sex differences in the activity of the dopamine-Beta-hydroxylase enzyme. This enzyme, a measure of peripheral sympathetic nervous activity, has been shown to be under genetic control and has been found to be associated with the presence of multiple minor physical anomalies (Rapoport *et al.*, 1974). It is conceivable that the activity of this enzyme might, for females, excessively restrict the expression of impulsivity; and might, for males, allow the excessive expression of impulsivity.

Mischel (1970) has pointed out that during socialization many behaviors become sex-typed, thereby acquiring different meanings for boys and girls. The two sex-typed behaviors receiving the most research attention have been aggression and dependency. Kagan (1964), in summarizing research findings, hypothesized that females were expected by parents and others to inhibit aggression, while males were permitted to express aggression. It would thus seem likely that, for boys, at least the active, assertive behaviors, if not the strongly aggressive behaviors, would not only be tolerated but would be encouraged (rewarded). For girls, however, these behaviors would be punished. It may be that high anomaly girls, when very young, were inclined to be frenetic, fast moving and impulsive. In order to enforce compliance to the socialization standards, they received negative reinforcement for active, assertive behavior and strong rewards for quiet inhibited behaviors.

Consistent with this interpretation is the fact that in two studies, conflicting relations of hyper- and hypoactivity to anomalies were found in preschool subjects, an age when socialization processes would not have had as much time to be effective as in the older subjects of the present study. It could, however, just as well be the case that further maturation, requiring only an average expectable environment, would result in more clear expression of a major problem, over-control, in school-age vs preschool subjects. The data of the present study cannot throw light on these important questions of biological and cultural determinants.

Boys diagnosed as being hyperactive, distractable, restless and poorly coordinated have received a great deal of attention (Conners, 1970; Wender, 1971). Inhibitied girls may have as many problems and be as distressed as hyperactive boys but fail to get comparable attention, because they are not as disturbing and disruptive to either the classroom or to the home.

It is noteworthy that this and previous studies have established the existence of congenital contribution to the two most important behavior problems of young male and female children, in terms of incidence. The importance of this congenital contribution does not lie in any implication of a constitutional predetermination of early behavior problems. Indeed, even behavior with known congenital determinants can be modified. Rather, the important implication is for early detection and amelioration of hyperactivity in males and excessive inhibition in females. It may well be that minor physical anomalies could be detected in early infancy before pathological patterns of parent–child interaction associated with behavior problems develop, or even that the emergence of the problems themselves could be averted.

SUMMARY

Elementary school girls who tended to be inhibited and socially ill at ease had significantly more minor physical anomalies than did girls who were outgoing and spontaneous. The procedure to assess anomalies required less than 10 min. per child. The association of anomalies with inhibition was significant regardless of the effects of poor coordination, low I.Q., or high rate of absenteeism. These and previous findings indicate that the minor anomalies are associated with a major behavior problem for girls (hypoactivity) and with a major behavior problem for boys (hyperactivity). Possible reasons for sex differences in behavior associated with the same congenital physical characteristics are discussed.

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REACTION TIME PERFORMANCE OF BEHAVIORALLY DEVIANT CHILDREN: EFFECTS OF PRIOR PREPARATORY INTERVAL AND REINFORCEMENT*

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INTRODUCTION

The present study is one of a series of investigations concerned with the quantification of behavioral deviancy in children who are aggressive, lacking in impulse control, emotionally labile, and inattentive. Of these characteristics, we were specifically interested in developing an objective method for measuring attention which might also be useful in our psychopharmacological research with such deviant children.

In our previous drug research with similar children (Winsberg, Bialer, Kupietz and Tobias, 1972; Winsberg, Press, Bialer and Kupietz, 1974), we have failed to obtain consistent results with regard to the effect of medication on inattentiveness. In these studies, as in most pediatric research, "inattentiveness" has been assessed by a rating scale technique which relies upon an evaluation of the child by a "significant other" (Conners, 1969; Kupietz, Bialer and Winsberg, 1972). The possibility that this technique is too subjective to reliably assess attentiveness and the need to better understand how deviant and nondeviant children differ in their response to situations demanding sustained attention, led us to seek a more objective paradigm for making such assessments.

Since attention deficit interferes with successful performance on a variety of objective perceptual-motor tasks (Stevens, Boydstun, Dykman, Peters and Sinton, 1967; Sykes, Douglas and Morgenstern, 1972, 1973), we attempted to determine whether one such task—the irregular reaction time (RT) procedure—would be useful in identifying specific performance patterns indicative of poor attending behavior. This procedure was considered particularly well suited for our purposes inasmuch as it requires some degree of sustained attention for optimal performance.

In the irregular RT procedure the duration of the preparatory interval (PI)—the interval between the warning and reaction stimuli—is changed on every trial according to a predetermined schedule. Since, on any given trial, the termination of the PI cannot be accurately predicted by the subject, he can best achieve optimal

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RT performance by preparing for the shortest interval expected in the PI series and if the reaction stimulus does not occur at that time, by maintaining his response preparation until it does occur (Grim, 1967).

In practice, however, response preparation is also influenced by the PI duration of the prior RT trial. This results in impaired reaction times when the PI of a given trial is shorter than the PI of the immediately preceding trial. As compared with normal controls, this impairment is more pronounced with brain-damaged children (Czudner and Rourke, 1970, 1972), retarded children (Gosling and Jenness, 1974), and adult schizophrenics (Nideffer, Neale, Kopfstein and Cromwell, 1971; Zahn, Rosenthal and Shakow, 1963).

Based upon data from adult schizophrenics, Zahn, Rosenthal and Shakow (1961, 1963) have theorized that highly distractible individuals, unable to sustain the level of attentiveness necessary for optimal performance, "simplify" the RT task by preparing their response for the current PI on the basis of temporal information conveyed by the *prior* preparatory interval (PPI).

The influence of the PPI upon the reaction time of the following trial, particularly when that trial contains a shorter PI, has been consistently demonstrated. However, since in the previously cited studies the PI value had been changed on every trial, the degree to which the PPI persisted in influencing reaction time beyond one trial was obscured. To assess the possibility that behaviorally deviant children are influenced by the PPI for more than one trial, we modified the irregular RT procedure by holding each PI value constant for four consecutive trials.

Assuming a larger PPI effect would be obtained with deviant as compared to nondeviant children, we felt it important to determine whether this finding could be modified by an external incentive (i.e. reinforcement). In normal children, reinforcement increases overall RT speed but does not appear to alter PPI effects (Elliot, 1970). However, to the extent that the relatively large PPI effect expected for deviant children reflects a less than "normal" level of attentiveness, it might be modified by reinforcement. Should reinforcement succeed in motivating these children to be more attentive (i.e. reduce the PPI effect), then low motivation level would be implicated as a basis for their characteristic inattentiveness.

To summarize, by using an irregular RT procedure, we hoped to differentiate behaviorally deviant and nondeviant children using the magnitude and duration of the PPI effect as an index of attention. Since deviant children exhibit problems of short attention span, it was expected that they would show a larger PPI effect than would nondeviant children. We also wanted to determine whether, and to what extent, reinforcement would eliminate the PPI difference which might be obtained between these groups.

METHOD

Subjects

A child was not considered for inclusion in the study if he: (a) had an I.Q. lower than 80 on the Peabody Picture Vocabulary Test, (b) exhibited thought disorder, (c) had a history of psychomotor seizures, or (d) showed obvious motor impairment. No child was receiving medication during his participation in the study. The final study samples consisted of 16 behaviorally deviant children and 16 nondeviant children.

The deviant group (14 boys, 2 girls) was comprised of those children who had been admitted as inpatients to Kings County Hospital primarily because of aggressive behavior. In addition, they were described as lacking in impulse control, being emotionally labile, showing poor academic performance and having a short attention span. These symptoms are included within the syndrome described by Clements (1966) as "minimal brain dysfunction". During the course of the study four children in this group had to be dropped and replaced for reasons of uncooperativeness.

The nondeviant children (14 boys, 2 girls) came from a local public school. All were performing at grade level and were not in need of special services for either academic or behavioral deficiencies.

The two groups were subdivided by randomly assigning half of each group to a reinforcement and half to a nonreinforcement condition. Table 1 presents the characteristics of the four subgroups with regard to I.Q. and CA. Statistical analyses using *t*-tests indicated that the groups did not differ significantly on either of these variables.

Table 1

Mean IQ And CA of Behaviorally Deviant And Nondeviant Children

By Reinforcement Condition

Condition	Deviant			Nondeviant		
	N	IQ	CA (Mos)	N	IQ	CA (Mos)
Reinforcement	8	98.1 ± 17.8	110.5 ± 9.6	8	105.8 ± 12.9	115.6 ± 11.4
Nonreinforcement	8	96.4 ± 12.7	112.4 ± 9.3	8	103.9 ± 13.2	121.8 ± 12.4
Total Group Mean	16	97.3 ± 14.9	111.4 ± 9.2	16	104.8 ± 12.7	118.7 ± 11.9
Range		82-139	92-129		82-124	101-136

Upon completion of their participation in the study, deviant children received $0·50 and nondeviant children received $3.00. These payments were felt to be appropriate remuneration for the relative amount of inconvenience the daily testing posed for the children. It was carefully explained to each child that payment was predicated upon his participation in the entire study and not upon the quality of his performance.

Design and procedure

The child was seated in front of the RT stimuli so that these were approximately 2 ft from him and at eye level. The stimuli were located on the front panel of a small metal cabinet which rested upon a table facing the child. The warning stimulus consisted of seven red neon bulbs—equally spaced along the circumference of a 4 in. dia. circle—and a 950 Hz, 62 dB tone, delivered from a speaker enclosed within the metal cabinet. A single white incandescent lamp, located at the center of the circle, served as the reaction stimulus. This stimulus was illuminated when the warning stimulus had remained on for a given PI duration. The child's response to the reaction stimulus, made by depressing a push button held in his preferred hand, extinguished both the warning and reaction stimuli. Response latency—the time between the onset of the reaction stimulus and the child's response—was measured in milliseconds (msec) using BRS series 200 logic modules. The PI programming and latency recording were performed in an adjacent room which also contained a one-way mirror and intercom system to permit continuous monitoring of each child.

The four PI values—2, 4, 6 and 8 sec—were presented such that each PI value followed every other PI, including itself, once. Further, each specific PI value was presented unchanged for 4 consecutive trials before the next PI value was introduced, yielding a total of 68 trials in the RT session. Each child received two sessions of RT testing daily for 5 days, in most cases consecutively, for a total of 680 RT trials.

The first day of testing constituted a baseline measure for all children and no child was reinforced on that day. For the remaining 4 testing days, children who were assigned to the reinforcement condition received an automatically dispensed M & M candy whenever their RT latency was less than or equal to their median latency of the second session of the previous day. The remaining eight children in each of the two groups received no reinforcement and continued in the task as in the baseline sessions.

RESULTS

For each subject the data from the two RT sessions were averaged together for each of the 5 days of testing. Prior to analysis, these data were transformed into logarithmic values in order to minimize the disproportionate contribution of extreme RT latencies to the mean values, as well as to normalize the skewed distributions typically obtained with latency measures. The logarithmic data were then subjected to a six-factor analysis of variance which included the following variables: Group (deviant vs nondeviant), Reinforcement Condition (reinforced vs nonreinforced), Day (1 through 5), PPI (2, 4, 6, 8, sec), PI (2, 4, 6, 8, sec), and PI Trial (1 through 4).

Because multi-factor designs may yield a number of spuriously significant higher-order interactions due to "extrinsic" nontreatment factors (Lindquist, 1953), only effects reaching the 0·001 level of significance were considered.

PPI effect

The mean RT performance of the deviant children was significantly slower than that of the nondeviant children (439·7 msec vs 336·3 msec, $F_{1,28} = 16{\cdot}79$). However, this significant Group effect did not interact with the PPI variable, both groups being influenced by the PPI to a comparable extent.

For both deviant and nondeviant children, reaction time was influenced by the PPI when PI duration was short but not when PI duration was long (PPI × PI interaction, $F_{9,8932} = 9{\cdot}80$). At short PI durations, as PPI increased reaction time also increased. However, this PPI influence occurred only on PI Trial 1 (PPI × PI × PI Trial interaction, $F_{3,8932} = 4{\cdot}59$). Reaction time on PI trials 2, 3 and 4 was uninfluenced by the PPI and varied primarily as a function of PI duration.

Effect of reinforcement

The Reinforcement variable, like the Group factor, did not interact significantly with PPI, but did interact with Day and Group in a significant three-way interaction ($F_{4,8932} = 18{\cdot}90$) which is shown in Fig. 1. Simple effects analyses at the 0·05 level of significance (Lindquist, 1953, pp. 165, 272) of the Group × Reinforcement Condition × Day interaction revealed that on Day 1 there was no significant difference between the reinforced and nonreinforced conditions in either of the groups (i.e. comparability of baseline performance) and that the deviant children were significantly slower than the nondeviant children from the very outset of the study. The two subgroups that were reinforced for fast responses improved significantly over the 5 days of the study. Moreover, by Day 2 of testing and for the remainder of the study, the RT performance of reinforced deviant children was not significantly different from that of both subgroups of nondeviant children. Of the children who received no reinforcement, those in the nondeviant group did not change significantly in their RT performance over the 5 days, whereas nonreinforced

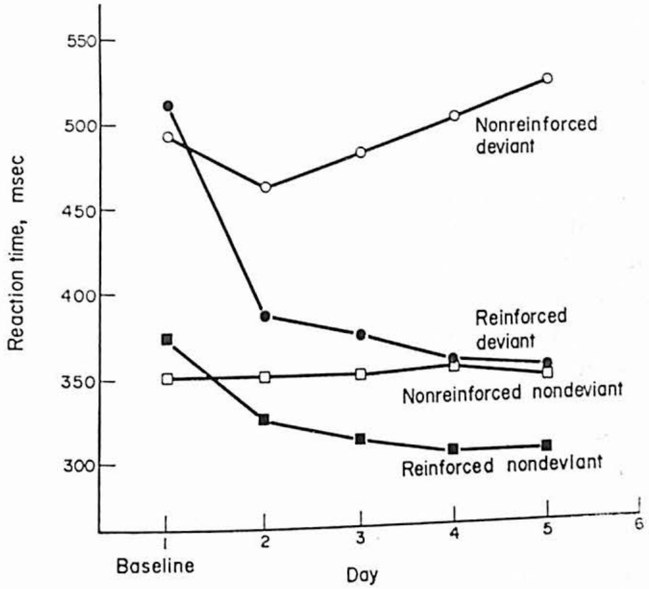

FIG. 1. Daily RT performance of deviant and nondeviant children under reinforcement and nonreinforcement conditions.

deviant children became significantly slower by Day 5 as compared with their performance at baseline.

DISCUSSION

Contrary to our expectation that behaviorally deviant children would be more influenced by the PPI than would nondeviant children, we found that this variable influenced the reaction time of both groups similarly. The obtained PPI effect—more impaired reaction time to a short PI as PPI duration increased—has been reported previously (e.g. Gosling and Jenness, 1974); however our procedural modification disclosed that this effect does not persist beyond a single trial. The introduction of reinforcement did not differentially alter the PPI effect in either group, but did eliminate the initial group difference in response speed.

The finding that deviant and nondeviant children were similarly influenced by the PPI was not consistent with the previously cited studies which found larger PPI effects for clinical as compared to normal populations. Two alternative explanations for this inconsistency may be proposed. Either the behaviorally deviant and nondeviant groups did not differ in their ability to sustain attention as required by the task, or the procedural modification, by encouraging reliance upon the PPI through the repetition of PI values, did not allow attention differences to emerge. However, since our deviant children responded more slowly than did the nondeviant children and since slower responses have been obtained when children are distracted from attending to the RT task (Dykman, Walls, Suzuki, Ackerman and Peters, 1970), it is likely that the latter alternative—that the groups differed in attentiveness but that this difference was obscured by our procedural modification—is more tenable.

The reinforcement variable was highly effective in "normalizing" the initially poor RT performance of deviant children. As is clearly shown in Fig. 1, their performance was immediately improved with the introduction of reinforcement on Day 2, and the "normalizing" effect (i.e. performance comparable to that of nondeviant children) was maintained for the remaining 3 days. However, in the absence of reinforcement, the performance of deviant children deteriorated over the 5 testing days, whereas that of nondeviant children did not. Inasmuch as the average baseline speed of deviant children was 140 msec slower than that of nondeviant children, it was not immediately clear to what extent the above findings—particularly that of performance deterioration among nonreinforced deviant children—were attributable to the initial group difference in performance level.

We therefore attempted to eliminate this group difference by matching deviant and nondeviant children on their baseline performance. Consequently, we rank ordered children, in each of the four subgroups, on the basis of their average RT speed during baseline testing. Next, we selected deviant children who were faster ("fast" children), and nondeviant children who were slower ("slow" children), than the median latency of their respective subgroups. This gave us four groups of children who were comparable in baseline RT performance. The baseline means for the four groups were as follows: reinforced deviant, 412 msec; nonreinforced deviant, 404 msec; reinforced nondeviant, 393 msec; and nonreinforced nondeviant, 380 msec. The performance of children in each of the groups during the 5 testing days is shown in Fig. 2.

When baseline reaction time was equated for the groups in this manner, the pattern of reinforcement effects was essentially unchanged from that obtained with the full sample (cf. Fig. 1). In the absence of reinforcement, the "fast" deviant

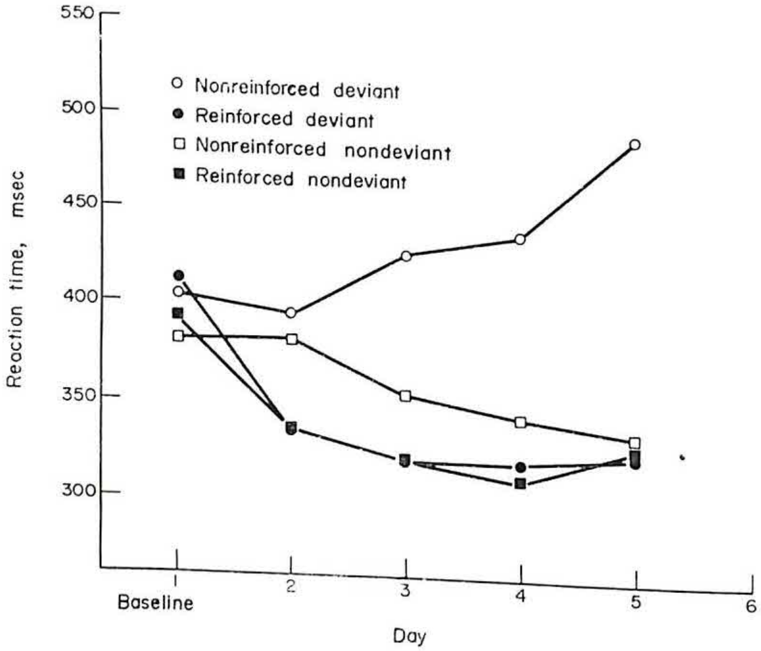

FIG. 2. Daily RT performance of deviant and nondeviant children under reinforcement and nonreinforcement conditions. Groups are matched on baseline performance by selecting "fast" deviant children and "slow" nondeviant children (see text).

children continued to display the marked deterioration noted in the performance of the full deviant group. The "slow" nondeviant children, however, showed some improvement during the same period. With the introduction of reinforcement, the "fast" deviant children and "slow" nondeviant children continued to improve similarly over the remaining 4 days. The replicability of these reinforcement effects after baseline RT differences had been eliminated, indicates that they were associated with the presence or absence of behavioral deviancy and were not artifacts of the performance differences at baseline in our original data.

Despite the fact that reinforcement did not differentially alter the PPI effect in either group, it yielded several findings which helped explicate the differences in response speed obtained between deviant and nondeviant children at baseline and in the absence of reinforcement.

Perhaps the most important finding in this regard was that the introduction of an external incentive brought the deviant and nondeviant children to a comparable level of performance. If, as has been suggested by Elliot (1970), the effect of reinforcement on the reaction time of children is primarily due to its facilitory effect on their attention, then the RT differences obtained between deviant and nondeviant children may be viewed as relative differences in their motivation to attend to the task. Hence, the slower reaction time of deviant children during baseline testing suggests that these children came to the task relatively less motivated to attend than did nondeviant children.

A second and related finding concerns the performance deterioration of deviant children in the absence of an external incentive. If the poor baseline performance of our deviant sample can be taken as indicative of a generally low motivation level—and the effectiveness of reinforcement in improving their performance suggests that it can—then the progressive deterioration of the nonreinforced subgroup may be attributed to a corresponding decline in their motivation level. Such an assumption would not be unreasonable given the monotonous nature of the reaction time task. In fact, when one considers the nature of the task and the number of testing sessions, it is the stable performance exhibited by the nonreinforced nondeviant children, which might be considered the more unusual finding.

Previous investigators, studying children similar to our deviant sample, have also found slower RT performance in such children as compared with their normal controls. However, these differences have been explained in terms of encoding speed (Spring, Greenberg, Scott and Hopwood, 1973), CNS processing time (Dykman *et al.*, 1970) or subtle CNS insults (Stevens *et al.*, 1967). The "normalizing" effects of reinforcement on the performance of deviant children in the current study suggests that the RT differences observed in earlier studies may have been due to differences in motivation. This underscores the importance of taking motivation into account—by incorporating a reinforcement condition—in studies assessing "deficit" functioning in various clinical populations.

An additional implication of the reinforcement data relates to Wender's (1971) assertion regarding the relative conditionability of children who exhibit the syndrome of "minimal brain dysfunction" (MBD). He has speculated that such children, who exhibit disorders of learning, motor behavior, perceptual-cognitive function, impulse control, interpersonal relations and attention, also have diminished ability to experience pleasure and pain. Consequently, Wender has hypothesized that these children are less sensitive to the effects of reward and punishment than are normal children. Since our clinical sample was comprised of children who exhibited many of the symptoms of the MBD syndrome, we take the "normalizing" effect of reinforcement on their performance to constitute preliminary evidence against such a hypothesis. Since this untested—and perhaps untenable—hypothesis is beginning to find its way into the clinical literature (e.g. Koupernik, MacKeith and Francis-Williams, 1975; Zahn, Abate, Little and Wender, 1975), further research to test the generality of our finding is clearly indicated.

SUMMARY

The visual reaction time (RT) of 16 behaviorally deviant and 16 nondeviant children was measured by a modified irregular RT procedure under conditions of reinforcement and nonreinforcement. Deviant and nondeviant children were similarly influenced by the prior preparatory interval (PPI), but deviant children were slower in overall response speed. Although reinforcement did not differentially alter the PPI effect in either group, it did succeed in "normalizing" the RT deficit exhibited by deviant children. This latter finding was discussed in terms of motivation level as a basis for the RT differences observed in this and prior studies using similar clinical pediatric populations.

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ATTENDANT STAFF SPEECH TO THE INSTITUTIONALIZED RETARDED: LANGUAGE USE AS A MEASURE OF THE QUALITY OF CARE

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CONSIDERABLE evidence has accumulated to suggest that language development and ability in retarded populations are adversely affected by institutionalization (e.g. Tizard, 1964; Lyle, 1960). Similar evidence has been reported for normal populations also (Kellmer-Pringle and Tanner, 1958). A recent study of normal children in residential nurseries in England reported that variations in direct care staff's speech and behavior in such settings are linked to these developmental effects directly (Tizard *et al.*, 1972). These variations in staff speech were also associated with differences in the organizational characteristics of the various residences.

The Tizard *et al.* study is an important advance, because it suggests some specific and carefully defined relations between aspects of the staff's behavior, the institutional setting and resident's development. This approach goes beyond a general demonstration that institutions are detrimental. With such a framework one can begin to consider *specific* ways in which residential environments can be made better for development.

The Tizard *et al.* (1972) work is based on the hypothesis that certain speech types, defined as "informative", are better for resident language development than others—such as "controlling" speech functions. These investigators indeed showed that "informative" remarks by staff elicited more relies from children and the pattern of results suggested such speech was more complex linguistically. They went on to show that the frequency of these various speech types was a good predictor of the independently-assessed language *comprehension* abilities of the children. Thus, such a measure can be viewed as an index of staff performance in residential facilities —using improved resident language development as an ultimate criterion.

An issue of recent interest in the developmental literature on language has been the occurrence of speech "simplification" by caretakers when addressing young children (e.g. Snow, 1972; Nelson, 1973). In general, it appears that the ability level of the hearer does exert a significant effect on the speaker—as evidenced by shorter and more redundant sentences to younger children in the above studies. The possible functions of such simplification have been discussed by Snow (1972). Tizard *et al.* (1972) considered a similar issue in relation to their language measure,

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and indeed found that "informative" speech to children increased markedly for older child "targets".

We might expect that such a "target" effect on speakers occurs with developmentally less advanced retarded hearers, just as it occurs for young children. A study by Siegel (1963) did show that lower ability retarded children were indeed addressed in shorter, less complex sentences. However, this was a laboratory investigation of adult "teaching" styles and it is of interest to investigate such target effects in a more natural context. The present study provided an opportunity to assess such effects across a wide range of resident ability levels. In addition to these substantive reasons for investigating the effects of "target" ability level for a population of the institutionalized retarded, such a contexual factor should certainly be controlled when considering the language indices as general measures of staff speech quality across resident populations varying in ability.

Another aspect of the present investigation involved independently collected observational and interview data on the day-to-day management practices in the settings studied, permitting us to assess the "Revised Resident Management Practices" scale (RRMP), a measure developed by one of us and her colleagues in English residential facilities for the retarded (King *et al.*, 1971). The scale, developing the work of Goffman (1966), provides an index of the extent of rigidity of routines, "block" or group treatment, social distancing between staff and residents, and formal depersonalization in residential settings for the retarded. Living units high in all these dimensions are characterized as "institution-oriented", those low in these features as "resident-oriented". Comparing the RRMP scores of our living units and the language measure thus provides information on the similarity of these two types of indices of residential care.

In this study we set out first to explore the applicability of the observational instrument of Tizard *et al.* (1972) in a different setting, residential facilities for retarded adults. Second, the impact of the ability level of retarded "hearers" on staff speakers was assessed as one ecological factor which previous evidence suggested might have a general effect on interaction patterns in such residences. Third, we wished to test further the Tizard *et al.* (1972) finding that certain types of staff speech have differential implications for speech processes and development in hearers. Finally, the relation between these language measures and a more general index of the quality of care in residential facilities for the retarded was investigated.

METHODS

1. *The setting*

The study was carried out at a large, state-supported residential facility for the retarded. The resident population of this facility varies widely in age and ability. Thirteen residence halls or buildings of the institution were studied (of 22), with a total resident population of 585—about 47% of the institution population. The populations in these residence halls are grouped by sex and to some degree by functional ability. The buildings excluded from the survey were multiple-handicapped populations or children's residences, so that 95% of the populations observed were over age 16 and 97% could walk unaided. Average I.Q. level in the 13 residence halls, as obtained from institution records, varies widely and is shown in Table 1. The average chronological age of each population is also shown, as well as the number of residents housed in each setting. The staff–resident ratio (staff assigned during the day shifts) averaged about 1 : 8 for the buildings, with all except one residence falling within a range of 1 : 5–1 : 12.*

TABLE 1. CHARACTERISTICS OF RESIDENT POPULATIONS IN THE STUDY

Building	Sex	No. of Residents	IQ Mean	Mean Age of Residents
1	M	22	56.2	27.6
2	M	23	54.2	32.3
3	F	42	53.3	30.4
4	F	27	51.3	21.9
5	F	44	43.7	44.6
6	M	79	41.8	45.1
7	F	91	37.4	33.1
8	F	32	35.9	16.1
9	M	55	28.0	26.8
10	F	34	26.5	30.6
11	M	34	19.1	37.6
12	F	63	15.2	25.4
13	M	39	14.9	43.4

2. *The technique*

We modified the technique of the Tizard study somewhat for our settings. While the Tizard work used a 5-sec time-sampling interval, for our observations we found a 10-sec observation interval, followed by 50 sec for recording, best suited our purposes. The first remark to a resident was recorded verbatim in writing by an observer and coded into one of 4 categories designed to describe the *function* of the utterance. The basic conceptual dichotomy (taken from the Tizard work) is that between speech which "controls" and speech designed to "inform". "Controlling" speech is defined as statements (requests, orders) to either terminate or begin an activity ("negative" vs "positive" control). "Informative" speech is defined as statements which explain, give new information, ask the resident for information—statements *not* concerned with changing the resident's immediate behavior. In our study, we collapsed all other speech types recorded in the Tizard study—humor, affection, displeasure, "supervisory" remarks with no real communicative functions—into an "other talk" category. Thus, the basic instrument used included four major codes: (1) negative control, (2) positive control, (3) information, (4) other talk. In addition, a "no talk" code was used when no speech to residents occurred in the interval. We also recorded when explanations were given with control statements—any sort of reason explaining the staff's request. The following examples give some flavor of the coding system:

(1) *Negative control.* (a) "Not so much!" (Resident serving himself food.) (b) "Will you hold still?" (Dressing a resident.)

(2) *Positive control.* (a) "Sing us a few lines, Caroline." (b) "Will you hand me those, please?"

(3) *Information.* (a) "What did you do at work today?" (b) "Did you get yourself a new cup?"

(4) *Other talk.* (a) "OK, OK, don't worry." (b) "That's a good girl." (Passing a resident in the hall.)

In addition to the language codes, we also recorded information about several aspects of the setting, and whether or not the resident spoken to by the staff member replied.

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*The language measures were not significantly related to either the age of residents or the staff–resident ratios of the buildings.

We observed all staff on duty in the residences during the period of study. Staff members were always assigned exclusively to one building, and so observations in different residences always involved different staff. Five 1-min observation blocks for one staff person were followed by five for the next person in rotation—established randomly each evening of study. The observer followed the staff member about the building recording his information for each period using a clip-board and special coding sheets. We obtained between 5 and 6 observation hours for each of the 13 residence settings, on three different days for each. The total number of 10-sec periods included in the analysis ranged from 204 to 277, with a mean of 250 and a standard deviation of 22.

Five observers were involved in the data collection. The observations were carried out over a period of two weeks in each residence hall. The observers were all strangers to both staff and residents and spent one or two days familiarizing themselves before beginning the formal observations. All language observations were carried out in the early evening hours, during the evening meal and the period immediately following it, which was usually a relatively unstructured "social" time for the residents prior to bed-time preparations.

3. *Reliability of observations*

Reliability studies were carried out while the field work was being conducted. Two observers coded simultaneously during these observation periods, and a total sample of 540 observation periods was thus obtained. From this sample, coefficients of concordance (number of agreements/number of observations) were computed for the major language codes, and for the various minor codes noted above. The average agreement on language codes was 0·88, which compared favorably with the Tizard *et al.* (1972) study's reported agreement of 0·80, although "negative control" was somewhat unreliable ($C_A = 0{\cdot}62$). Reliabilities for all other measures ranged from 0·86–0·97.*

RESULTS

1. *Description of basic findings*

Wide variations in the frequency of staff speech modes were observed among the various settings, as well as in the simple frequency of speech to residents and the likelihood of resident reply to the staff's remarks. In order to measure these variations, proportions of the various speech types were computed for the total number of observations with speech to residents in each setting. The frequency of staff speech was computed as a percentage of the total observations made when residents were present and the frequency of resident reply as a proportion of all remarks addressed by staff to residents. Table 2 shows the means, standard deviation and ranges of these basic variables. Also reported is the proportion of commands (or "control") which included explanations, though, as noted, the reliability of this code is uncertain. Lastly, the proportion of all observations with informative remarks is reported, the index mainly used by Tizard *et al.*(1972).

The wide range of variation in the 13 residential settings is apparent in the table. The largest speech category is "information" on the average, but the two "control" categories combined slightly exceed this.

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*Another kind of reliability we assessed was the stability of our measures over observational "days" in each setting, i.e. the proportions of speech types measured in the successive observation periods we obtained for each residence. Across the 13 settings, the obtained r for proportion of "controlling" speech was 0·68, and that for proportion of "information" was 0·71, correlating Days 1 and 2 vs Day 3. For the proportion of observations with speech, the correlation between Days 1 and 2 vs Day 3 was 0·62. The correlations suggest acceptable day-to-day stability for our major codes.

The proportion of commands with *explanations* was too infrequent to assess an inter-rater reliability for this category.

TABLE 2. DESCRIPTIVE RESULTS FOR THE LANGUAGE CATEGORIES

Category	Mean	Standard Deviation	Range
Percentage of all speech coded:			
Negative Control	12.23%	5.4	5.8 - 22.3%
Positive Control	29.08%	8.7	14.4 - 44.9%
Control (Total)	41.32%	12.6	21.0 - 62.7%
Information	39.10%	12.3	17.8 - 53.3%
Other Talk	19.42%	9.3	7.7 - 33.3%
Speech to residents	67.01%	13.1	45.5 - 86.9%
Speech eliciting resident reply	46.38%	28.8	10.4 - 92.7%
Commands with explanations	8.10%	5.6	0.0 - 19.0%
All observations with information	26.15%	11.1	9.9 - 45.0%

2. *Effects of resident “target” ability*

We were unable to record the *specific* “target” resident of a staff member’s speech, as was done by Tizard *et al.* (1972), because our settings had many more residents in each building. Therefore, the effects of this setting feature could be assessed only by considering the *average* developmental level of all residents in a building, or in some cases, in the various living units within a building. While this is less than a satisfactory approach, the consistency of the evidence with previous findings is quite substantial.

The mean I.Q. score for each residence hall is given in Table 1.

Table 3 presents the intercorrelations of the proportion of each speech type with the average I.Q. scores across the 13 residences. The proportion of informative speech is strongly positively related to average resident developmental level, as found in the Tizard study. Both positive and negative control are inversely related to resident ability, though these relationships are weaker. The % of speech replied to is also highly correlated with resident I.Q.; but the frequency of staff talk is not—as Tizard *et al* also found.

Because this evidence is based on a building-level analysis, a large number of other factors operative at that level were necessarily left uncontrolled. Though we could not achieve the control of studies where the individual target was observed,

TABLE 3. STAFF LANGUAGE PROPORTIONS AS A FUNCTION OF AVERAGE RESIDENT DEVELOPMENTAL LEVEL (PEARSON r)

Speech Type	r	Significance Level (two-tailed tests)
Percentage of all speech coded:		
Negative Control	-.64	.02
Positive Control	-.67	.02
Information	+.78	.01
Other Talk	-.03	n.s.
% of commands with explanations	+.49	.10
% of speech eliciting reply	+.90	.01
% of observations with staff speech	+.19	n.s.
% of all observations with informative speech	+.60	.05

it was possible to study these same effects in four of the residence settings, each of which contained several dormitories or "wards" which differed markedly from each other on resident developmental level. This analysis was possible because we recorded staff *location* (by room) during each observation period. Assuming that the resident spoken to was usually a member of the ward group noted in these cases, it becomes possible to estimate inter-ward differences in staff speech within each building. All four of these residences were buildings for severely retarded people (I.Q. = 15, 19, 26, 28), but each contained one or more separate wards with more able residents. A total of 237 observations on such higher ability wards and 407 on less able ones for the four buildings could be identified for this analysis.

A series of t-tests for the 4 language types and the total frequency of speech revealed that only the t for "informative" remarks was significant, in the predicted direction ($t_{(3)} = 4{\cdot}41$, $p < 0{\cdot}02$, one-tailed test). Informative speech was more frequent to abler residents.

At a more detailed level, we found five staff members in these buildings who worked at least some of our observation periods in *both* a "high" and a "low"-resident ability dormitory. Speech profiles of these 5 staff in the two types of settings revealed a significant effect only for the amount of "informative" speech, again in the predicted direction ($t_{(4)} = 2{\cdot}60$, $p < 0{\cdot}05$, one-tailed test). Each staff member made informative remarks more frequently to the higher-ability population. All other tests were not significant. The fact that this effect is observable within individual staff members' speech patterns, when they move from relatively less to more able resident groups, provides substantial evidence that "target" characteristics are one important determinant of this speech type's frequency.

In summary, the present evidence extends the finding of the Tizard *et al.* (1972) study to a different population. Target mental age and ability appear to have a strong effect on the amount of "informative" interaction that caretakers direct to retarded residents. This result means that the effects of resident ability level on staff speech should be considered when comparing data from settings with populations varying in general ability.

3. *Staff speech and resident language development*

The Tizard *et al.* (1972) study found that "informative" speech in residential nurseries for normal children elicited more replies from targets than any other type and implied that such speech was higher on standard measures of linguistic complexity (mean length of utterance and proportion of sentences with subordinate clauses). Most importantly, they showed that nurseries high in "informative" speech had higher scores on resident language comprehension, as assessed independently by the Reynell Language Comprehension Scale (1969) Thus, these investigators felt justified in concluding that the frequency of informative speech was a measure of the *quality* of staff talk, and therefore a reasonable index of one feature of the performance of staff in such facilities.

Our results support the Tizard *et al.* findings in all particulars for staff speech in a different setting, a residential institution for the retarded. For our total sample, the rate of resident reply by speech type was (a) informative = 64·9%, (b) other talk = 40·4%, (c) positive control = 32·7% and (d) negative control = 26·2%.

Second, our results also suggest that informative speech is high on a standard measure of linguistic complexity. In order to investigate this question across all our settings, we drew a random sample of five remarks, previously coded into each of the four speech categories for each building. We thus obtained a sample of 20 sentences for each of the 13 residences, or a total of 260 staff remarks. We counted the number of words in each of these utterances (excluding exact repetitions of phrases) and then computed the mean length of utterance (MLU) index, the simplest measure of linguistic complexity in use (e.g. Tizard *et al.*, 1972; Snow, 1972).

We subjected these data to a two-way analysis of variance (fixed effects model), to test the factor of speech type independently of residential setting for its effect on the MLU. Table 4 presents the results of this analysis. As can be seen there are significant differences between the speech types on this measure of complexity. The overall means for the MLU for each speech type are: "informative" = 6·15, "positive control" = 5·66, "negative control" = 4·15, and "other talk" = 3·77. Informative remarks appear to be higher than other speech types in complexity, though positive control is also quite high on this index.*

Finally, though we did not collect independent *test* data on resident language ability, as was done in the Tizard study, we did gather survey material on individual residents' language comprehension by interviewing direct-care staff. Comprehension was measured by an ordinal-scale item which asked whether each resident could

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*As Table 4 indicates, the independent effect of residential setting on the MLU is also significant, but weaker than the effect of speech type. However, the resulting MLU index for each of the 13 residences turns out to be substantially associated with the frequency of informative remarks for the building ($r = 0·62$, $p < 0·02$, one-tailed). We therefore decided not to report on the MLU index for the buildings separately from the language measures, as Tizard *et al.* (1972) had done, since it was apparently closely associated with them. This MLU index for the building was not significantly associated with average resident I.Q. ($r = 0·33$, *n.s.*) in the building, nor with Revised Resident Management Practices scores ($r = —0·28$, *n.s.*) however.

TABLE 4. COMPLEXITY OF UTTERANCE (MLU) BY SPEECH TYPE AND RESIDENCE (ANALYSIS OF VARIANCE)

Source	df	SS	MS	F
(A) Speech Type	3	258.9	86.30	11.30*
(B) Residence Hall	12	239.3	19.94	2.61*
Interaction (A x B)	36	235.7	6.55	0.86
Error	208	1589.0	7.64	--
Total	259	2322.9	--	--

* $p < .01$

understand: (1) complex commands, (2) simple commands, (3) action words only, (4) own name only or (5) was unresponsive to speech. The reliability of this item between staff raters of the same resident was 0·84 (coefficient of concordance). We eliminated the four highest ability residences (see Table 1) from this test, since in each, all residents were reported at the highest level on our item scale. Ranking the remaining 9 buildings on the proportion of informative remarks for all observations, and on their median reported comprehension abilities showed a close positive relationship (Kendall's $\tau = 0{\cdot}67$, $p < 0{\cdot}01$, one-tailed). Average resident I.Q. was not quite significantly related to the comprehension measure for these 9 buildings, however ($\tau = 0{\cdot}44$, $p = 0{\cdot}06$, one-tailed). This finding is thus consistent with the Tizard *et al.*, study in demonstrating a close relation between the frequency of informative speech and resident comprehension abilities, which does not appear to depend strongly on measures of general ability (I.Q.).

These data suggest that environmental variations may affect comprehension abilities in adult retarded populations. An alternative interpretation, however, would be to argue that our outcome measures are indices of staff "perception" of resident language comprehension, rather than an actual index of such comprehension abilities and that such "perceptions" affect staff speech patterns. Only a longitudinal assessment of resident comprehension skills before and after differing staff speech environments could test these two interpretations. Our results are consistent with the stronger independent test data of the Tizard *et al.* study on this point, however.

4. *Relationship to the RRMP*

Data on the RRMP Scale were collected for each residence. Scores for each item are summed to obtain an index which can range from 0–56.* Lower scores indicate more "resident-oriented" practices. The present group of residences ranged from 2–32 on the Scale, with a mean of 22·2 (*s.d.* = 9·5). When we intercorrelated the language indices for each residence and its RRMP Scale score, we found a number of substantial relationships, suggesting the two measures have a good deal of communality. Table 5 presents this evidence and also shows the effect of controlling for the average resident ability level (I.Q.) in the residence, since both the RRMP and some language measures were strongly related to resident ability, as noted. Some of the partial correlations remain significant, suggesting that the language measures do indeed have a systematic relation to this more general measure of the quality of care in residential facilities for the retarded.

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*The original scale contained 30 items. Two of them were dropped in this study. Fifteen of the remaining 28 items were used in the first version of this scale (King and Raynes, 1968) and scores on these items correlated at 0·96 with scores on the 28 item scale. King and Raynes showed that scores on the 15 item scale correlated 0·92 with the 30 item scale.

TABLE 5. LANGUAGE MEASURES AND RRMP SCALE SCORE INTERCORRELATIONS

Variable	First Order Correlation with RRMP(a)	Partial Correlation (controlling average IQ of residents)
A. Proportion of all speech to residents coded:		
Negative Control	.73***	.45*
Positive Control	.81***	.62**
All Control (1 + 2)	.87***	.68**
Information	-.72***	-.23
Other Talk	-.23	
Resident Replied	-.90***	-.58**
B. Proportion of all observations coded:		
Speech to Residents	-.27	
Informative Speech	-.66**	-.36

a The correlation of the RRMP and average resident IQ is -.84 (p .01)

* p < .10, one-tailed

** p < .05, one-tailed

*** p < .01, one-tailed

"Resident-oriented" practices are associated with *less* controlling speech by staff and with more conversational interchange between staff and residents, as shown by more frequent resident reply to staff remarks. Since resident-oriented practices are defined in part by less regimentation and less social distance between staff and residents, these moderate interrelationships are predictable. However, the frequency of informative speech appears to be independent of the RRMP, once resident ability level is statistically controlled. This suggests that care practices in such settings are multidimensional. Making care more "resident-oriented", as indexed by the RRMP, will not effect much change in staff "informative" talk to residents. Just as care can vary greatly across living units in a single institution, it can apparently vary across several dimensions as well, within a single residential setting.

DISCUSSION

The present study suggests several general points. First, there is a good deal of variation in the frequency of functional language types used by staff in different living units within the same institution. This variability seems to be associated with aspects of the organization of the different living units, as we plan to describe in a subsequent paper.

Second, our evidence indicates that more severely retarded adults were addressed less often in an "informative" manner by staff. We were able to show that this effect occurred for the same speaker when the level of "target" ability changed. These findings parallel the evidence (e.g. Snow, 1972; Nelson, 1973) that shorter and simpler sentence structures are used when adults address younger target "hearers", since informative remarks were shown to be more complex, on the average, than other speech types. The extent to which these two trends interrelate is not clear. However, our results on the relation of speech type to mean length of utterance suggest that an increasing use of informative remarks to older "hearers" may account, in part, for the increased linguistic complexity of speech addressed to them by adults. Thus, the developmental level of the hearer would seem to affect not only the form, but also the *function*, of the total speech sample directed to him or her by adults. Our evidence suggested this was true when the targets of address were retarded adults of varying levels of ability; the Tizard *et al.* (1972) study similarly demonstrated this effect when children of varying ages were the targets of staff speech.

These results show that target effects on the speech of staff caretakers are important and must be taken into account when assessing the "quality" of staff speech to resident populations varying in ability. Within the constraints of this general finding, however, the present study indicates that this speech *function* approach to staff language use reveals important differences across settings. At lower levels of resident ability, at least *more* frequent informative talk by staff was associated with better resident speech comprehension. In conjunction with the stronger evidence from Tizard *et al.* (1972) on this point, this result implies that the present observational measure does provide an index of the *quality* of staff speech. Informative speech is also more likely to elicit replies by residents, and is higher than other types of speech on a standard measure of linguistic complexity (MLU).

Similar effects of different language usage by adults to young children have been noted by others. Nelson (1973), observing the language environment of young children in the home, concludes: "Thus, the most salient relationships between mother and child speech are those involving the mother's active role in *directing* the child's behavior, which has a negative impact, and of *responding* to his verbal behavior, which has a positive impact" (p. 93). Question-asking, higher mean length of utterance to child and verbal acceptance were central components of a maternal "responsive" style. Controlling and rejecting interactions were more frequent in a "directing" style. These speech styles seem to be similar to those defined as informative vs control-oriented systems, respectively, in the present study and the Tizard *et al.* work, and there are similarities in Nelson's findings in relation to their effect on the children's comprehension skills.

Finally, our findings suggest that less controlling speech patterns occur in settings characterized as more "resident-oriented" in their treatment practices on the RRMP Scale (King *et al.*, 1971). These moderate relationships between different types of instruments provide a further validation of both measures as indices of the quality of staff–resident interaction in institutional settings. However, our measure of the frequency of informative speech and the RRMP are not closely related. The care provided in these residential settings is not unitary—a change in performance in one of these dimensions does not imply a change in the other. We shall have to go considerably beyond simple stereotypes of "good" or "bad" care, to understand the dynamics of such residential facilities, and to find ways of insuring that they adequately promote the development of their residents.

SUMMARY

An observational measure of adult speech to children, developed by Tizard *et al.* (1972) was modified and applied to residences for retarded adults. The measure categorizes the major functions of staff talk to residents as "control" and "information". Results resembled the findings of Tizard *et al.* (1972)—"informative" staff speech was more complex and its frequency was associated with resident language comprehension abilities. The speech measure was related to another index of the quality of care provided in such facilities. Ability (mental age) of resident speech "targets" was also found to affect the frequency of informative remarks by staff.

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A NOTE ON THE EFFECTS OF PRIOR ANGER AROUSAL AND WINNING OR LOSING A COMPETITION ON AGGRESSIVE BEHAVIOUR IN BOYS

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The carthasis hypothesis of aggression usually refers to a decrease in aggression following exposure to aggressive modeling stimuli or direct expression of aggressive behaviour. Recent formulations of the hypothesis (Doob and Wood, 1972; Feshback, 1970) suggest that occurrences of catharsis are limited to instances where an angry individual expresses aggression against his tomentor. Doob and Wood (1972) found that aroused adult subjects showed subsequent drops in aggressive responding provided they were given an interpolated opportunity either to hurt, or observe being hurt, the agent responsible for their anger and frustration.

Several authors (Lorenz, 1966; Storr, 1968), however, suggest that direct aggressive activity may be unnecessary—that participation in competitive activities serves the cathartic function as well. To these authors, competition serves as a substitute activity for aggression. Presumably, winning a competition should provide greater satisfaction of the drive substituting for aggression than does losing it or not competing, and therefore winning should produce a greater decrement in aggressive behaviour.

On the other hand, there are grounds for expecting successful competition to lead to increased aggression. Social learning views of aggression (Bandura and Walters, 1963) suggest that opportunities for vicarious or direct aggression serve to reinforce rather than diminish subjects' hostility. Subjects may well perceive a competitive activity as an opportunity to settle the score with someone who has angered them, and winning the competition may serve to reinforce their attempts to retaliate rather than to diminish their level of hostility.

Because of the profusion of competitive activities among children and because authorities sometimes recommend the use of competition to substitute for direct aggression, our goal was that of determining the effect of successful competition against one's frustrator upon aggression in elementary school boys. Because different theories predict opposite outcomes, no specific prediction was advanced. Rather, the matter was left for empirical determination.

METHOD

Subjects and design

The subjects were 108 boys drawn in approximately equal proportions from the third, fourth, and fifth grades of an upper-middle-class public school in Brisbane, Queensland, Australia. The average age of the children in the study was 9 years, 4 months. Eighteen boys were assigned to each of six cells in a 2 × 3 factorial design involving two levels of anger arousal and three levels of competition.

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Apparatus

A specially constructed reaction-time apparatus was used in the competition phase of the experiment. This apparatus consisted of a metal box 9 in. wide, 6 in. deep, and 6 in. high. At the bottom of the front panel were two push buttons, 5 in. apart. The left hand button was labeled "Get Ready" and the right hand one "Go". Immediately above each button was a small red light bulb which could be activated from an adjacent control room. At the top of the panel were two windows, each containing neon numerical indicator tubes which, when activated from the control room, illuminated numerical values. The left hand window was labeled "Other Boy's Score" and the right hand one "Your Score".

Aggression was assessed by an aggression machine which was similar to ones employed in previous experiments with children (Perry and Perry, 1974). It consisted of a panel with 10 push button switches and two lights, one red and one blue, mounted on top.

Procedure

The subjects were sent individually by their teacher to the experimental room. For half the subjects in each anger arousal and competition condition the experimenter was a female in her late thirties; for the other half it was a male in his late twenties. In the first phase of the experiment, subjects were asked to sketch and colour a picture of their school. They were urged to do their best on this task, as afterwards their picture would be shown to another child whose job it would be to evaluate their effort. Each subject was shown a box containing 10 tokens and told that the other child would evaluate the subject's drawing by determining how many tokens it was worth. It was explained that the more tokens the peer removed, the more poorly he considered the drawing. The subjects in the anger arousal condition were shown three attractive prizes and were told they would earn their choice of the prizes if the other boy left five or more tokens for the subject. No mention of a prize was made to boys in the no anger arousal group, but they were told their drawing would be similarly evaluated. Upon questioning, all subjects understood the evaluation procedure, and most seemed to work enthusiastically and diligently on their assignment.

After 5 min, the experimenter took the child's drawing and box of tokens to an adjacent room, where the peer (whose identity would remain unknown to the subject) was presumably located. For subjects in the anger arousal condition, the experimenter returned with only two tokens in the box which he gave to the subject to count and commented, "It looks like the other boy doesn't think you deserve a prize". He then removed the prizes from view. For the other subjects, he returned with all 10 tokens and remarked, "It looks like the other boy really liked your picture". Previous research has demonstrated that arbitrary and negative evaluations of one's work (Hartmann, 1969) and prevention from obtaining a desired goal (Perry and Perry, 1974) successfully serve to arouse subjects' reported anger against the source of their misfortune.

The competition phase of the experiment immediately followed. An attempt was made to devise a competitive situation which clearly satisfied the requirements of Deutsch's (1949) theoretical statement of what operations should characterize competition. Competition was described by Deutsch as a social situation where " 'X' obtains his goal only if A, B, C do not obtain theirs, or if 'X' obtains his goal, A, B, C cannot obtain theirs". The experimenter explained to subjects assigned to the two competition conditions that they would now play a "game of speed" with the other boy to see which was "the faster sport". The subjects were then introduced to the reaction-time apparatus. They were instructed to press the "get ready button" each time the light above it came on and to keep holding it down until the "go light" came on. They were then to press the "go button" as quickly as possible. It was explained that the boy in the next room had a machine exactly like theirs, that they would be playing the game at the same time and that whoever got to the "go button" first would earn a point for that trial. The subjects' attention was drawn to the fact that scores for each player in the form of running totals would be on display at the top of the machine and that the first one to get to 10 would win. At this point the experimenter indicated he would go to the adjacent room where he would monitor both boys' performance and control the presentation of lights and scores. Thereafter, 14 reaction-time trials ensued, at approximately 10-sec intervals. The boys' scores varied from trial to trial in a predetermined order, except that in the successful competition condition the subjects appeared to win on 10 trials (thus winning the competition) and in the unsuccessful competition on only 4 (thus losing it).

In the no competition control condition, the experimenter simply gave the subject 14 reaction-time trials at the "speed machine", with instructions to perform as quickly as possible. No mention was made of the other boy at this point in the procedure and the score windows and labels on the apparatus were shuttered from view.

The experimenter then introduced the subject to the aggression machine. It was explained that the other boy was to work on some "numbers problems" and that he would enter his answers into a "computer" which would automatically let the subject know if it was right or wrong by illuminating either the blue or the red light, respectively. It was the subject's job to let the peer know when he made a mistake by delivering aversive auditory stimulation through headphones. On each error trial the subject was free to vary both the intensity (from 1 to 10) and duration of the noise.

The experimenter explained he would be in the teachers' tea room during testing but actually retired to the second room where he began the presentation of stimuli. Over the course of 25 trials, the other boy appeared to make 10 errors. Upon completion, the experimenter rejoined the subject, who was thanked and requested not to reveal anything about the experiment to the other children. For subjects in the anger arousal condition, the experimenter expressed surprise at the peer's negative evaluation of the subject's drawing and indicated he thought it very good. Similarly, the experimenter mentioned to boys in the unsuccessful competition condition that he considered their performance on the speed machine to have been faster than most boys'.

RESULTS AND DISCUSSION

The dependent measures of aggression were the intensity and duration (in seconds) of noises which subjects administered to their victims, averaged across the 10 error trials. A 2 × 3 × 2 analysis of variance involving two levels of anger arousal, three levels of competition, and two experimenters was performed on the scores for each measure.

The analysis of subjects' intensity scores yielded a significant interaction between anger arousal and competition, $F\ (2, 96) = 6{\cdot}87$, $p < 0{\cdot}01$, which derived from the fact that children in the no anger arousal/no competition group administered noises of substantially less intensity than children in the other five groups. The means for this interaction are given in Table 1. To explore further this interaction, the effects of competition were examined at each level of anger arousal by t tests. When boys had been angered, there were no statistically significant differences among the three competition groups. For the non-angry boys, however, both winning and losing the competition led to greater intensities than not competing, $t\ (96) = 2{\cdot}89$, $p < 0{\cdot}01$, and $t\ (96) = 2{\cdot}68$, $p < 0{\cdot}01$, respectively. No other effect in the analysis reached statistical reliability.

These results for the intensity index clearly argue against the idea that competition serves to reduce aggression in cathartic (or some other) fashion. Rather, the data

TABLE 1. MEAN AGGRESSION SCORES IN EXPERIMENTAL CONDITIONS FOR TWO DEPENDENT MEASURES

Dependent measure	Anger arousal	Competition condition: Compete and win	Compete and lose	No competition
Intensity	Angry	6·5	7·2	6·9
	Non-angry	6·9	6·8	5·6
Duration	Angry	1·56	0·93	0·86
	Non-angry	0·97	1·29	0·93

suggest that either an anger arousing or a competitive experience (of either variety) may be enough to produce increased intensities of aggression. Although the intensity data shed no light on the specific effect of winning a competition, as under neither condition or anger arousal was there a significant difference between boys who won the contest and those who lost it, they argue against the idea that competition, in any form, serves to diminish aggressive responding.

More informative results bearing on the specific effect of winning a competition against one's frustrator were obtained from the analysis of subjects' duration scores. This analysis yielded a significant interaction between anger arousal and competition condition, $F\ (2, 96) = 3{\cdot}52$, $p < 0{\cdot}05$. The means for this interaction are given in Table 1. The pattern of the interaction was explored by t tests, again by examining the effects of competition at each level of anger arousal. When boys had been angered, winning the competition produced greater duration of aggression than either losing the competition, $t\ (96) = 4{\cdot}25$, $p < 0{\cdot}01$, or not competing, $t\ (96) = 4{\cdot}73$, $p < 0{\cdot}01$. Durations in the latter two conditions were not significantly different. When boys were not angry, however, losing the competition led to longer durations than either winning it, $t\ (96) = 2{\cdot}14$, $p < 0{\cdot}05$, or not competing, $t\ (96) = 2{\cdot}46$, $p < 0{\cdot}05$. The durations of these latter two groups were not significantly different.

These results provide clear-cut evidence on the effects of winning a contest against an agent of frustration in elementary school boys. Contrary to a prediction stemming from catharsis theory, the angered boys behaved more aggressively if they had beaten their opponent than if they had lost or not competed at all. These results are most easily interpreted within social learning theory (Bandura, 1973). Probably, boys who have been angered by a peer are motivated to even the score. In naturalistic settings this behaviour may take the form of aggressive retaliation but, especially with increasing age, other forms of settling the score are possible. One such way is the demonstration of superior prowess in some sport or skill where competence is important to the self-esteem of the participants. In this sense, competition may well serve as a form of aggressive retaliation. The angry boys in the present study may have taken the competition situation as an opportunity to settle the score with their frustrator. Apparently, however, in boys of this age winning a competition serves to reinforce their attempts to even the score rather than to diminish their level of hostility and, consequently, increases in aggressive responding ensue.

It may be that by adulthood, affective and cognitive controls develop which would in fact predict a decrease in aggressive responding following a successful competitive experience. Mood changes, such as increased guilt or feelings of happiness over success may reduce subjects' aggressive inclinations (Berkowitz, 1973). It is also likely that adults are more likely to have internalized the norm of "enough is enough", that is, that once retaliation has been successful further attack is unwarranted. Clearly, developmental studies which include assessment of subjects' affective and cognitive reactions to competitive experiences are required to clarify this issue.

If winning a competition in angry boys functions to reinforce retaliatory attempts, then losing it should function as punishment for such attempts. Yet angry boys who lost their contest were not less aggressive than those who did not compete. Probably, unsuccessful competition by angry boys constitutes greater frustration as well as punishment for retaliation, and thus the net result is similar to that for no competition. This interpretation of losing as frustrating is corroborated by the findings for the non-angry boys, where losing led to more aggression than either winning or not competing. Taken together, the pattern of results points to the conclusion that the effects of successful and unsuccessful competition depend on the nature of the subject's relationship with his adversary.

Data from the intensity and duration indices were consistent in demonstrating that under neither condition of anger arousal does either winning or losing a competition facilitate reductions in aggressive responding. Clearly, these results lend no support to the arguments of those (Lorenz, 1966; Storr, 1968) who recommend that competitive activities be employed to divest children of aggressive "drive".

SUMMARY

Boys were either angered or not angered by a peer and then assigned to one of three competition conditions (successful competition, unsuccessful competition, or a no competition control condition). Finally, they were tested for aggression toward the peer. Competition led to increases in aggression, although the magnitude of this effect depended on level of anger arousal, form of competition and measure of aggression. The finding that previously angered boys delivered aversive stimulation of greatest duration following successful competition led to the conclusion that winning a competition reinforces angry children's attempts to even the score with their adversary and consequently leads to increases in aggressive responding.

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ANNOTATION

SPECIAL SCHOOLS OR SPECIAL SCHOOLING FOR THE HANDICAPPED CHILD? THE DEBATE IN PERSPECTIVE

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A CENTRAL issue in special education today is the extent to which handicapped children can and should be provided with special educational facilities within ordinary rather than special schools, thus extending the *opportunities* (although not guaranteeing the outcomes) for much greater academic and/or social integration than special school placement generally offers. Although the practical problems will differ according to the nature of the child's handicap many of the principles involved are common to all groups of handicapped children, including mildly and severely mentally retarded children, disturbed children, the physically disabled and children with visual and hearing impairments. Debate is not confined to Britain but is currently lively in most countries with highly developed educational systems, in particular Scandinavia and the United States.

This issue is not solely as an educational one: it must be seen within the wider context of increasing recognition of the right of handicapped persons to be treated as a part of rather than apart from society. One indication that the present unsatisfactory situation is slowly changing is the growth of interest in the principle of 'normalisation' meaning, essentially, the efforts made to absorb a handicapped person into the normal community. Thus Gunzburg (1974) refers to increasing pressure from parent organizations and professional circles to create conditions for the mentally handicapped which are as 'normal' as possible. "The essence of this creed", he states, "is that 'normal' behaviour cannot be encouraged in abnormal conditions such as a hospital or segregated educational facilities".

Another very different factor relevant to the debate about where special education should be provided is the increasing recognition that there are already, within the ordinary schools, many pupils who have never been categorized as 'handicapped' but are undoubtedly in need of special help. The Isle of Wight Study (Rutter *et al.*, 1970) showed that approximately one child in six had a significant degree of handicap (either intellectual retardation, reading retardation, psychiatric disorder or physical handicap or a combination of these). The implication of this finding is, in Gulliford's words (1971), that "measures for providing special help in ordinary schools must receive more attention in terms of organization, methods of teaching and the training of teachers. It is no longer possible to make a sharp distinction between special and ordinary schools". Thus a carefully planned and major extension of special provision within ordinary schools could be of enormous benefit to two groups of children: many of those at present in special schools, and many who are now in ordinary schools without adequate help.

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SPECIAL SCHOOLING AS AN ALTERNATIVE TO SPECIAL SCHOOLS

Those working in special schools often feel that the quality of the 'education' (using the term in its widest sense) provided in them could not be maintained within ordinary schools. If we are not prepared to put into ordinary schools comparable resources (and so far, with some exceptions, we have not been prepared to do this) then the facilities *are* likely to be inferior but there is no logical reason why they should be, as examples from other countries such as Sweden have shown.

For many people 'special education' still means 'special schools'. A more useful approach, adopted by the Council for Exceptional Children in the U.S.A. (EFL, 1974) is to think in terms of a continuum of provision ranging from placement of a child in an ordinary class with no modifications to placement in highly specialized residential institutions. The main points along the continuum are: (1) ordinary class full-time with no extra help; (2) ordinary class full-time but ancillary help provided; (3) ordinary class (child's base) part-time but withdrawn part-time to 'resource room' or similar special facility; (4) special class (base) part-time, ordinary class for selected activities only; (5) special class full-time other than for 'social' activities (meals, play-time, etc.); (6) day special school (base) formally linked to an ordinary school; (7) day special school without such links; (8) boarding special school; (9) residential hospital school.

At present many handicapped children (some undiagnosed as such, others categorized as handicapped) are in ordinary classes without extra help. Of the others, the great majority are either in day or residential special schools. Comparatively few are in the types of placement 2–5, that is, receiving special schooling within ordinary schools in which supportive services have been provided, a notable exception being the hearing-impaired group.

How exactly is special schooling (i.e. Types 2–5 above) organized? In (2) the child is in an ordinary class but special supportive services are available to him and/or his teacher. What these are depend on the nature of the handicap. Physically handicapped children may be provided with a welfare assistant whose activities could include supervision and help with toileting, dressing, feeding or mobility. In some areas (e.g. the Alberta Children's Hospital, Calgary) physiotherapy, speech therapy, and occupational therapy is provided by mobile teams. Other children, for example the hearing or visually impaired and their teachers, are supported by peripatetic specialists whose duties may be largely advisory or may include individual teaching.

Type 3 provision (in an ordinary class but supported by a school 'resource centre') has not yet been widely developed in this country. However, in Sweden where national policy is to place *all* handicapped children in ordinary schools (Lundstrom, 1972; Stenholm, 1974), in Denmark, and in parts of the U.S.A. (EFL, 1974; Birch, 1974) this system (along with, in Sweden, the use of 'companion teachers' who work with the child in the ordinary class) is fast replacing special classes (which in their turn have replaced many special schools) as the main way in which special education is provided. Resource centres can be established in selected schools for children with a variety of handicaps including slow learners, physically handicapped children with additional learning difficulties, hearing or visually impaired children and disturbed children, the child being withdrawn to the specially staffed and specially equipped resource centre for as much individual help as he requires.

While a large proportion of the resources allocated to supportive services within ordinary schools go, in both Sweden and Denmark, towards helping children with intellectual difficulties much support is also available for disturbed children. Sweden is experimenting with the 'school day centre' which provides within the ordinary school a supportive environment available to the child not only during the school day but also before and after school-hours proper. The centres are staffed by teachers, leisure supervisors and matrons working in close co-operation with the school psychologist and social worker. In Denmark the 'support/observation' class provides a similar base to which children with emotional and adjustment problems can be withdrawn for varying periods. In Britain some experiments of this kind are being made (e.g. Chalk, 1975). However, "far too many children who may be described as socially maladjusted are being sent away to boarding special schools . . . simply because they have shown behaviour which is a perfectly normal and healthy reaction to intolerable home (or school) conditions" (DES, 1974). This would not have to be done were more supportive services of these kinds available within ordinary schools.

The other main way of organizing special schooling within the ordinary school is the special class, the aim generally being to cut down the time the child spends there and to increase his participation not only in the social but also the intellectual activities of the rest of the school (Type 4). For some children however, for example severely retarded children, social integration may be the only meaningful form of integration to aim at (Type 5). In this country special classes have been widely used for hearing-impaired children and in some areas for mildly retarded children but less often for other groups. In Sweden, although still widely used for severely retarded children, special classes are being replaced by resource centres, partly because, as is frequently pointed out (e.g. DES, 1967, 1972, 1974a) children in special classes can be very isolated.

EVALUATING DIFFERENT FORMS OF SPECIAL EDUCATIONAL PROVISION

Although the need for evaluating the effectiveness of different types of services for handicapped persons is frequently reiterated, surprisingly little evalution of different ways of providing special education has actually been done. Another important point is that the type of provision most suitable for a particular child will depend not only on the nature and severity of his handicap but also on his age. Many handicapped children can benefit from ordinary rather than special pre-school facilities but may later require much more in the way of special provision as academic skills become more important. Research into the sorts of special provision needed by handicapped teenagers has been particularly neglected.

An exception to the general lack of evaluation is the series of studies carried out (mainly in the U.S.A.) on the efficacy of special class compared to ordinary class placement for mentally retarded (ESN(M)) children, but after reviewing these studies Gunzburg (1974) comments that "the presence of many variables usually makes it impossible to come to definite conclusions".

Anderson's study (1973) of the placement of physically handicapped children in ordinary primary schools suggested that while children with purely physical disorders (e.g. congenital limb abnormalities) cope well both socially and intellectually, many children with neurological abnormalities and their teachers need greatly improved advisory and supportive services. These could best be provided if groups of handicapped children were placed in selected ordinary schools and given extra help either through a special class or resource room system. Research into the effectiveness of special class compared to special school placement (using matched groups) for cerebral-palsied and spina bifida children is currently being carried out by my colleague, Christine Cope. Preliminary findings suggest no difference in academic attainments between the two groups; data on the social and emotional development of the children is now being analysed. Comparisons between special classes showed major differences in the amount of social and academic integration achieved; the key factors underlying these differences seemed to be administrative and organizational, i.e. related to policy, design and staffing, rather than to the nature of the children's handicaps.

Little evaluation has been done of the efficacy of different kinds of provision for the large numbers of children with psychiatric disorders. Only a minority of such children (1 in 5 in the I.O.W. Study (Rutter *et al.*, 1970)) are receiving any kind of treatment and/or special educational provision and the authors refer to our 'vast areas of ignorance' on such questions as the treatment of anti-social disorders, the use of special schools and the use of remedial educative techniques. Those who do receive 'special educational treatment' are unlikely to receive it in an ordinary school. Thus figures for January 1972 (DES, 1974b) shows that of the 14,208 children diagnosed as 'maladjusted', 18·7% were in special day and 25·8% in special boarding schools (some being schools for maladjusted and some for ESN pupils) while a further 22·9% were on the register of independent schools. Only 15% were in special classes or units within ordinary schools, the remainder (17·6%) being recorded under 'other' provision.

Do the outcomes—in terms of 'improvement'—justify the placement of such a large proportion of these children in special schools? Again there is an almost complete absence of relevant research, although Kolvin and his colleagues at the University of Newcastle are currently carrying out a study in which outcomes are being compared for disturbed children in several different placements (including ordinary class, special class in ordinary school, hospital out-patient, hospital in-patient, day and residential ESN schools and day and residential schools for maladjusted children).

In conclusion it is suggested that despite our large investment in special schools in the past we would do well to look very seriously indeed at the case for putting similar resources in the future into ordinary schools, this placing the emphasis upon special *schooling* for handicapped children rather than upon special *schools*.

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BOOK REVIEWS

The Experimental Study of Freudian Theories. H. J. Eysenck and G. D. Wilson. Methuen, London, 1973. pp. xv + 405. £4.90.

Psychoanalysis, it seems, is dead but won't lie down. To prove it the authors of this book have reprinted several papers, 18 of which have been chosen on the ground that "people whose judgment (they) value, and whose knowledge and expertise is unquestioned (by whom?)", consider them to vindicate "Freudian" theory; each paper being "followed by a critical discussion" which (according to the dust-cover) "allows readers to form their own opinions while providing helpful suggestions and guidelines as to how to approach experimental studies with a critical mind". And, in case those readers still fail to reach the right opinions, there is an epilogue to persuade them that psychoanalysis "is in a highly vulnerable position" and ripe for replacement by a "new paradigm".

Unfortunately, confidence in the authors' flair for rigorous paradigms is not enhanced by a selection procedure so obviously open to bias. Moreover, most of the predictions tested are only tenuously derived from the theories cited—which are themselves expressed so diffusely that it is doubtful whether they really could be validated. The authors' conclusion that these studies "give little if any support to Freudian concepts and theories" is therefore neither surprising nor very significant.

With chapter 19 the tactics change—simulated objectivity gives way to frank attack—and, it must be admitted, a palpable hit is scored. The criticisms of Freud's early paper on Little Hans are difficult to fault, and psychoanalysts should take seriously the complaint that "no analyst has ever pointed to the failings of this account or disowned its reasoning". It must also be agreed that the cause of psychoanalysis is not helped when the (nevertheless genuine) concept "reaction-formation" is glibly misapplied to ensure that "Freud cannot lose" (p. xii); yet neither need it fear the device used in this book to ensure that he cannot win—consisting in the assertion, when some "Freudian" hypothesis does receive experimental support, that it was first suggested by someone else (Freud was, in fact, very ready to make such acknowledgement himself). More insiduous is the continual imputation that psychotherapy is in some way incompatible with conditioning theory. On the contrary (as Freud himself implied, and many later analysts have explicitly recognized) it is hard to see how either the development of neurosis or its resolution by psychotherapy could be explained *except* in terms of learning.

Chapter 20, on the other hand, cannot be taken seriously in this context, except as a cadenza to display virtuosity on the Eysenckian trumpet—or perhaps fiddle, since it is irresponsible to profess to educate readers in the objective assessment of scientific evidence, while expecting them to take on trust the authors' own interpretation of the results of obscure statistical procedures. The discerning reader (whether or not versed in statistical methods) will look askance at the claim that two (considerably overlapping) clusters emerging on a chart, after a complex series of esoteric manipulations, represent the incidence of two so ill-defined and subjective categories as neurosis and psychosis ("misclassification" of which amounted to 29%—adjustable to 21% by drawing a line by eye through the graph!).

But what are the real issues? If "there is remarkable unanimity . . . that psychoanalysis is not in fact a scientific theory" (in which case, as the authors point out, "such books as this are *a priori* useless") why reproach psychoanalysts for not trying to prove it is? Freud's paramount achievement was to invent an instrument—the psychotherapeutic relation—by means of which a patient's emotional difficulties can be directly examined and alleviated (by a process of deconditioning) through the proper handling of some basic phenomena, including those he described as transference (which makes the treatment possible), counter-transference (which makes it difficult) and the negative therapeutic reaction (which, if not understood, makes it impossible). Such an instrument is no more discredited by the out-dating of some early speculations than is the telescope or microscope. Eysenck and Wilson cannot be expected to know of the informed and cogent criticisms continually directed by psychoanalysts themselves to various aspects of "classical" and other psychoanalytic theories, but they should realize the futility of trying to assess any complex technical subject from the outside.

Perhaps, however, this book's best claim to our attention is as a flagrant illustration of the reason why psychiatry is in a self-perpetuating rut—namely that one group of psychiatrists (or clinical psychologists), faced with the same empirical data as their colleagues, will come to profoundly different conclusions. Eysenck has elsewhere claimed that whether or not he is personally biased against psychotherapy is irrelevant, since scientific statements must be allowed to stand on their own feet regardless of the motives of their proponents. That he can say this is clear demonstration of the truth of its contrary. Scientific statements are obviously not self-verifying—their truth or falsity needs to be assessed by people. And workers in psychiatry cannot hope to make reliable judgements unless they follow the example of those in other scientific and technical fields and first calibrate their instruments—in this case their own mental apparatus, which when considering the problems of other minds is especially liable to bias against correct results. Though lacking in rigour, Eysenck's own paper on the effectiveness of psychotherapy—also included here (chaper 21)—does add weight to the general impression that psychotherapy as a whole has not been conspicuously successful. But this could have been predicted from the above hypothesis, since many people presume to do psychotherapy not only without adequate instruction, but also without first being freed from the distorting effects of their own early conditioning.

A. C. WOODMANSEY

Families and Family Therapy. SALVADOR MINUCHIN. Tavistock Publications, London, 1974. pp. viii + 264. Index 4 pp. £4.35.

IN THE field of family therapy there are those therapists who prefer a more active approach and those who prefer a more passive interpretative approach, and the theoretical frameworks in which family therapists work can be derived from psychoanalysis, learning theory or systems theory. Minuchin is quite active in his approach and bases his theoretical formulations firmly on the foundation of systems theory. In his understanding of the family, he is usually more concerned with the relationships revealed by the use of words than the information imparted by the words themselves. In this book, perhaps even more than in his *Families of the Slums*, he relates his practice of family therapy to his thinking about the system and structure of the family, and to anyone interested in family therapy, this is an exceptionally valuable synthesis.

Structural family therapy, as practised by Minuchin, uses sociological concepts such as barriers, distance, enmeshment, alliances, battles, overprotection and neglect, which derive from the thinking of the family therapy pioneers, Jackson, Haley and Bateson. Where Minuchin makes a unique contribution is in the precise application of these concepts to the treatment of families in distress. He makes it very clear where transactional patterns in a family are in fact harmful and how best to restructure the family transactions so that the harmful ones are eradicated. It is particularly interesting to see in print his clear statement that, in family relationships, it is possible to err on the side of too much or too little affection, of overprotection or neglect. Therapists should be aware of both situations and able to deal with them when they occur.

To be effective in a structural family approach, the therapist must first accommodate to the family members, which entails accepting their values, explanations and prejudices, and being generally warm and empathic. At a later stage, when the alliance is formed, the therapist can attempt to restructure the family system, by such activities as assigning tasks, escalating stress in the session (causing a crisis) and manipulating the presenting symptom by either exaggerating it or de-emphasising it. Some of the restructuring activities as described in the book are really brilliant, in the way that they are designed to achieve the appropriate goal, while at the same time being the kind of tasks that the family is prepared to accept. For example, when Minuchin was faced with a father and his 14-yr-old daughter locked in a struggle over the daughter's anorexic eating pattern, he accommodated to the father's belief in "togetherness" in the family by verbal comments and by putting his arm on the father's shoulders, while at the same time supporting the daughter's wish for some independence, in being allowed to keep her bedroom door shut. Meanwhile, the family ordered a meal, to be eaten during the conjoint session and the therapist modelled for the father how to encourage normal eating in his daughter, without recourse to verbal battles, through a kind of "eating in unison". In another example, his colleague Montalvo congratulates a mother on her scapegoated daughter's reading abilities, which the mother had dismissed as being very poor—a fascinating example of accommodating and restructuring in the same intervention. At a later stage, he suggested that the mother should spend some time teaching the same daughter, who was prone to light small fires in their flat, how to strike matches safely.

Much of the book is taken up with the transcripts of actual family interviews and these are interspersed with comments by Minuchin on what is happening during the interview. There are interviews with normal couples, and interviews with families with various problems. The fact that Minuchin works at the Philadelphia Child Guidance Clinic means that most of these families presented with problems in the children, which range from diabetes, enuresis and anorexia nervosa to behaviour problems and depression. However, there was one fascinating case in which a depressed man, who wished to remain the only "patient" in his family, was persuaded to reveal that his wife had a problem with enjoying sexual intercourse, and the definitive treatment consisted of an approach to their sexual problem along the lines of Masters and Johnson. As a true follower of systems theory, Minuchin is much more interested in family transactions than in either symptoms of illness or the open expression of emotion. As compared with behaviourists, his approach is less systematic, but richer and more varied, and his transcripts of cases with the accompanying comments are extremely convincing. Some more objective measures of improvement in the families treated would have strengthened the book, and perhaps it is in this direction that the potentialities of the systems approach could perhaps be more fully exploited. However, the book is a brilliant and convincing account of structural family therapy, and should be read by anyone interested in the treatment of children and families.

M. J. Crowe

The Seige. Clara Claiborne Park. Penguin Books Ltd., Harmondsworth, Middlesex, England, 1972. pp. 269. 45p.

This is a case study of an autistic child from an unusual angle: from the point of view of the mother and family of the child. It gives a vivid and agonising picture of what it is like to live with such a child. As Dr. S. Tischler has pointed out in moving papers on his work with the parents of such children, living with a child with the handicap of autism is worse than living with a child with any other sort of handicap. In spite of this, Mrs. Park, the mother of the autistic child she calls Ellie, sets out to try to modify this handicap—or, as she terms it, to lay seige to the fortress of her child's autism. Her concluding words are an encouragement and a warning to all would-be beseigers. She writes:

"*Human beings fortify themselves in many ways. Numbness, weakness, irony, inattention, silence, suspicion are only a few of the materials out of which the personality constructs its walls. With the experience gained in my siege of Ellie I mount smaller sieges. Each one is undertaken with hesitation; to try to help any one is an arrogance. But Ellie is there to remind me that to fail to try is a dereliction. Not all my sieges are successful. But where I fail, I have learned that I fail because of my own clumsiness and inadequacy, not because the enterprise is impossible. However formidable the fortifications, they can be breached. I have not found one person, however remote, however hostile, who did not wish for what he seemed to fight. Of all the things that Ellie has given, the most precious is this faith, a faith experience has transformed into certain knowledge; that inside the strongest citadel he can construct, the human being awaits his besieger.*"

The whole of the book is a record of a family trying out and learning ways to get in touch with the opting-out member of their family. They evolve their own methods, and sadly, are not always helped, but rather hindered, by the "experts". Their methods cannot be described in the short space of a review. The reader should buy the paperback for himself and read the fascinating and readable story of how this family wrestled with the unresponsive Ellie, to make contact with her in the end by slow and painful struggles. It is an encouraging and moving record.

Mental health workers of every discipline will learn much from reading this book. Mrs. Park is scrupulously detailed in telling us about the birth and developmental history of Ellie. Psychiatrists and psychotherapists will find much of interest here. Professional workers with parents will find much to respect in the family's devoted and sustained efforts. No wonder Elizabeth Irvine, a well-known social worker of long experience quotes from Mrs. Park's record with the respect of one professional for another. As a child psychotherapist I echo Mrs. Irvine who writes:

"I have written about this book at some length because of its scarcity value. It makes my point about the morale of parents, about their need for encouragement and appreciation, and about how easily and how often this morale is not only neglected but unintentionally undermined."

Mrs. Parks herself writes thus:

"I learned from my child slowly and painfully, she and I together. But I would have learned faster and with fewer gaps, if I had been in contact from the beginning with skilled and sympathetic professionals."

I think and hope that in the more informed climate of professional opinion of the present day Mrs. Parks would have found a greater number of workers who would have been more helpful and less obtuse than some of the ones she describes in her book, although it is with relief that she tells us of the notable exceptions to her bad experiences. Her book will encourage the growing tendency for professionals to have more insight and compassion concerning the problems of families with an autistic child and will give hope to parents who have children like Ellie that if they can stand the almost unbearable strain, with enormous dedication and devotion the children may achieve some degree of normal functioning. However, a note of warning needs to be sounded here; there are other children who are not such straightforward cases of autism as Ellie and who have associated with the autistic withdrawal, another or even several other handicaps. These children are even more difficult to help and Mrs. Park's book may raise false hopes in parents whose child is different from Ellie. In the opinion of this reviewer the next most urgent job for the professionals is to be more precise in their diagnoses which should be based on a deep understanding and study of psychodynamics and not only on descriptive features.

FRANCES TUSTIN

Genetic Studies in Mental Subnormality. Part 1. **Familial Idiopathic Severe Subnormality: The Question of a Contribution by X-linked Genes.** B. C. CLARE DAVISON. Part 2. **The Application of Genetic Principles to Screening for Metabolic Disorders: The Leybourne Grange Survey of Mentally Subnormal Siblings.** PETER N. SWIFT, PHILIP F. BENSON and JOHN D. STUDDY. Special Publications No. 8. *Br. J. Psychiat.* Headley Brothers Ltd., Kent, 1973. p. x + 82. £2.

IN AN ideal world every case referred to any clinician would be exhaustively investigated from every possible point of view for complete academic satisfaction. Reality considerations, outside teaching hospitals and special centres, impose substantial constraints and necessitate that the most elaborate investigations are focussed upon cases with fair possibility of positive findings.

Despite steadily increasing identification of syndromes of known aetiology, the majority of cases of severe mental retardation remain in the category "of unknown aetiology" or "idiopathic". The two studies which comprise this book both start from the proposition that investigation of families in which more than one member is affected is likely to reveal those cases of mental subnormality in which relevant aetiological factors may be identified.

Dr. Clare Davison starts with the known excess of males over female mental defectives, this excess being more marked with more severe defect. Her interest was in the possibility of X-linked recessive genetic contribution to idiopathic severe mental defect. After preliminary consideration of 250 families in the Oxford area she was left with 141 families satisfying the criterion that at least two individuals should be considered to be suffering from idiopathic mental defect with I.Q. 50 or less. Of these families 50 had males only affected, 21 females only. A remarkable number of pedigrees were compatible with X-linkage. Eleven families had two or more severely subnormal sibs with similar clinical abnormalities, which did not fit into any previously recognised syndrome, suggesting X-linked recessive inheritance in the male-only families. Dermatoglyphic findings supported the conclusion that there is a substantial contribution made by X-linked inheritance towards the excess of males amongst the severely retarded. The implications for genetic advice are discussed, with somewhat higher risks for a further child after a sporadic male case of idiopathic severe subnormality.

The paper is supported by extensive references and appendices summarising the 141 families plus an additional 30 families eliminated at an earlier stage because the underlying cause had been determined. Representative pedigrees are reproduced and there is an address given from which complete dermatoglyphic data can be obtained. The combination of comprehensive presentation and caution in arriving at conclusions instils respect and confidence.

The second study was designed to discover new metabolic disorders of recessive inheritance amongst the heterogeneous mass of conditions resulting in mental subnormality. It was accepted that these were likely to prove extremely rare and that some would escape any routine screening procedures, such as those normally employed at subnormality hospitals. For inclusion in their intensive study, Swift, Benson and Studdy chose as their criterion the occurrence of mental subnormality in siblings, so as to hopefully obtain a population with a high risk of inherited metabolic defect. As in the Davison paper, here too there was a marked preponderance of males. The Leybourne Grange study is not strictly comparable with the Oxford study because Swift *et al.* deliberately included families with siblings having I.Q. up to 60, recognising that even this higher figure may exclude certain affected families, because with certain inborn errors of metabolism intelligence may be within normal range in many cases. Davison applied stricter I.Q. criteria (up to 50 for both siblings) and criticised earlier studies for including mild mental handicap with I.Q.'s up to 80 and more within retarded groups. The 30 families in the Leybourne Grange study produced four cases in which two or more retarded siblings excreted excessive amounts of unusual amino acids, four new biochemical abnormalities discovered in a small-scale study of S.S.N. inpatients at one hospital!

The detailed presentation of methods and individual findings will be invaluable to investigators intending to make similar studies in other hospitals and residential communities for severe subnormals, with a fair prospect of discovering yet more new diseases.

P. GRAHAME WOOLF

Biology and Knowledge. JEAN PIAGET. Edinburgh University Press, 1971, pp. 384. £4.00.

I MUST begin by saying what this book is and what it is not. It is an extended essay in epistemology. It draws comparisons between the problems that face research scientists in two disciplines that may well seem very remote from one another. One of these is the study of the development of cognition and its relation with experience. The other is the study of evolution. The book seeks to establish a fairly close analogy between these two fields of enquiry in regard to the problems that they pose, in regard to the range of preconceptual models that can guide the scientist in his approach to these problems and in regard to the criteria for selecting the most fruitful of these alternatives. The book is not an introduction to the psychology of learning, nor is it an introduction to the study of evolution. It is certainly not an introduction to both, whatever that might be. On the contrary, it takes for granted in the reader a reasonable degree of familiarity with both fields. Inevitably, one wonders whether the book is addressed to an imaginary reader.

Very briefly, the argument is as follows. The central problem for genetic epistemology is to establish how it is that man arrives at an interpretation of the universe that eventually goes beyond any experience; theory can and often does precede experimental verification, and the invention of mathematical models precedes the discovery of physical phenomena that they serve to interpret. For evolutionary theory the central problem is to describe how the genetic programming can provide an enormous proliferation of exceedingly complex, vastly different, yet amazingly well adapted species. Intelligence (or "knowledge" which is a better translation in this context) is adapted to its object—the world. Species are adapted to their environment. The problem is to provide a plausible explanation of that adaptation.

In epistemology, Piaget finds three approaches; rationalism or *a priorism* (from Plato to Chomsky?), empiricism particularly in the form of classical behaviourism (including Skinnerian theory), and interactionism, i.e. Piaget's own theory of equilibration. Likewise in evolution he finds three theories; classical Darwinism in which genetic mechanisms are shielded from the environment, Lamarckism which sees changes in genetic make-up as the product of environmental forces, and a kind of interactionism proposed by Waddington.

Taking the third solution in each case, and comparing it with one or both of the other two, the analogy still holds. Crude behaviourism sees each reaction as evidence of a separate quasi-independent link between a given stimulus and a given response (an exaggeration, but let it pass). Crude, "ball-bearing", neo-Darwinism sees each gene as independently governing, or contributing to some feature of the genotype. By contrast Piaget regards intelligent behaviour as the product of a "scheme", an organisation within the mind (or brain) of the subject. Similarly Waddington insists that genes do not act independently of one another. Successful differentiation, or adaptation, requires an organisation of genes, the genome, with certain genes or groups of genes determining the action of other genes instead of acting directly on the behaviour of the cell. Moreover, just as Piaget sees the scheme as accommodating to the exigencies of the environment—within the limits of its own potential for change, so Waddington sees the genome as responsive, but not infinitely responsive, to environmental disturbance. Both are structuralists.

There is no doubt that Piaget is the outstanding pioneer in his own field and it is apparent that he is well-versed in the relevant aspects of contemporary biological theory. The analogies that he draws are compelling and even exciting. The problems are certainly real enough in both fields. Yet one must admit that the biological analogy does not illuminate the question of just how the child progresses from one level of understanding to another, what kind of generality attaches to learning, and so on, which are crucial problems for Piagetian theory. Nor does the psychological analogy help to elucidate the precise ways in which the genome (if it exists) responds to the environment. Both theories are as yet over-ambitious and, to that extent, speculative.

One is therefore left with the question; *cui bono?* I suppose there are some philosophers of science in English speaking countries and more in Europe, who will find in this book much food for thought. They will certainly need to work at it for it is one of the most difficult books I have encountered. This is partly because it takes so much for granted, partly because Piaget can never resist the temptation to explore every by-way as he comes to it, which makes his argument unnecessarily difficult to follow, and partly because his own style is dense and the translation is over literal. E. A. LUNZER

Clinical Supervision of the Psychiatric Resident. D. B. SCHUSTER, J. J. SANDT and O. F. THALER. Brunner/Mazel, Inc., New York, 1972. pp. v + 334. $10.00.

IT IS GOOD to see a new book devoted to *clinical* teaching and supervision. While we argue the merits of different curricula it is easy to forget the central role of clinical work. Since Hippocrates the medical tradition has emphasised that hard work and accurate observations must be based in the "sick room" rather than the library and although serious debate often seeks to defend the medical model in psychiatry—it is often a biological or epidemiologcal model based on the laboratory or field survey which is emphasised.

This book comes from the University of Rochester where perhaps the most ambitious undergraduate teaching programme in medicine and psychiatry has been developed. Moreover the clash between the psychoanalysts and biological psychiatrists which is such a feature in some American schools seems to have been avoided in Rochester where the work of Engel and Romano has attempted to integrate biological and analytic understanding and to base it firmly on clinical observation.

The views of this school on clinical teaching therefore deserve special attention. The training programme for psychiatry residents there lasts 3 yr, of which the first is spent on inpatient units in which patients are treated primarily by drugs and supportive care as they would be in most British hospitals. In the second year the resident goes either to the emergency service or to the outpatient department where he gets most of his training in psychotherapy. Finally in the third yr supervision of clinical work is greatly reduced to allow the resident to find his own way of working.

This book concentrates on the supervision of interview technique and describes a teaching method developed by them in which the initial interview with the patient is conducted by the resident with his supervisor sitting in and sometimes intervening or continuing the interview when the resident has failed to cover certain areas.

The material in the book relies heavily on tape recordings of such interviews which were discussed at supervision conferences by the supervisors which in turn were recorded. This means that a lot of clinical detail is given together with different interpretations of it but also that the book is somewhat thicker than its contents merit and at times a little boring. It also contains an extensive review of the literature on the teaching and supervision of psychoanalysis and psychotherapy which could also usefully have been summarised and treated more critically.

They find that inexperienced registrars tend to turn the interview into a friendly chat in which sensitive areas are glossed over or to present themselves as distant and aloof as they believe psychoanalysts would be. In teaching a lot of space is devoted to the problem of encouraging the individual development of the therapist and avoiding a blind identification or copying of the supervisor. The supervisors' own difficulties are also touched on especially the touchy situation which arises when the resident uses the supervisor as a way of getting solutions to his own problems.

In summary this is a welcome book but could have been more carefully prepared. Unfortunately tape recorders are no substitute for hard work and accurate observation. JOHN STEINER

Bladder Control and Enuresis. Clinics in Developmental Medicine, No. 48/49. Edited by I. KOLVIN, R. C. MACKEITH and S. R. MEADOW. Spastics International Medical Publications, Heinemann, London, 1973. pp. xvi + 328. £6.20.

ENURESIS to be sure is a common complaint, arguably the most commonly encountered single symptom in the entire field of paediatric psychiatry. Admittedly too it can be vexatious for the child, his parents and their doctor. Nevertheless, to devote a whole text exclusively to the subject—how can this be justified? In his introductory remarks to the International Colloquium on which this book is based, Professor Sir Martin Roth explains its *raison d'etre*. Enuresis, he reminds us, is a deceptively over-simplified disorder. Familiarity with it lulls us into underestimating its complexity and the multifactorial basis of its causation and treatment. Re-examining these different facets therefore can be a useful exercise in helping us to appreciate the changing pattern of child psychiatry, with its increasing emphasis upon objective research, and its growing interdependence upon other disciplines. Bladder control may not in itself rank as a subject of supreme relevance to these issues, yet "it is 'minute particulars' such as enuresis that sometimes teach the most valuable lessons".

As if to emphasize this point, the editors have assembled an international *coterie* of contributors charged with clarifying different aspects of the problem. Thus, under physiology, MacKeith and his colleagues set out to consider how children become dry, the maturational process involved, and what factors may potentially inhibit that process. There follow several papers dealing with epidemiology, the genetics of bedwetting and a miscellany of topics in which alleged association with enuresis is examined, e.g. depth of sleep, neuro-physiological concomitants, and certain syndromes of urogenital dysfunction.

The role of psychological factors is amply restated by various workers from differing standpoints. Douglas examines the impact of stressful events in the pre-school child: Rutter and his colleagues review their Isle of Wight data on enuretics; Shaffer undertakes a masterly over-view of emotional disorder in relation to the complaint; while Graham contributes a salutory paper setting out the limits of child psychiatric practice as a standard treatment approach.

By contrast, the case for complementary programmes of management is ably argued by other contributors. Turner and Dische respectively cover conditioning treatment; Blackwell and Currah review the status of chemotherapy; Brazelton presents a persuasive brief for planned on-going family involvement as a means of obviating the enuretic problem; while Meadow, in a balanced and eminently readable *resume*, full of practical common-sense, restores this treatment spectrum to its proper perspective, capping it with a plea for confidence to be sustained—not least by the therapist.

By comparison, the final section of the book is rather discouraging. A sophisticated project by Kolvin and his co-workers, aimed at applying cluster analysis to the task of predicting therapeutic outcome, is, to be sure, laudable in conception and certainly impressive in design, but by contrast, disappointing in its practical implications. Likewise, guidelines for the future read rather dauntingly. Among the quartet of contributors who present their personal summaries for research prospects, Rutter's is perhaps the most comprehensive, and yet it leaves us with the nagging thought that however wide-ranging this treatise, it has raised more questions than it answers. Perhaps, on reflection, that is no bad thing. PHILIP PINKERTON

Behaviour Modification in Educational Settings. Edited by R. D. KLEIN, W. G. HAPKIEWICZ and A. H. RODEN. Charles C. Thomas, Illinois, 1973. pp. xv + 552. $14.95.

THIS COLLECTION of papers is aimed primarily at prospective teachers. The Editors claim that traditional courses in educational psychology have rarely been seen as immediately relevant to classroom practice, at least by trainee teachers. Such a view is widespread both sides of the Atlantic. However, on the American side, the past decade has seen the rapid rise of behavioural techniques being applied to classroom difficulties and these are presented as more relevant to the needs of the practicing teacher.

The Editors have selected 33 papers—one original, five previously unpublished, and the remaining 27 from 13 different journals. Most of the papers will not be readily available in college of education libraries, so that this book should make them available to a wider audience.

The papers are grouped in four sections—Operant principles; Respondent principles; Teacher training; Issues and problems. The first section is the longest and most important. A number of well-known studies illustrate the principles and application of operant conditioning to a wide range of problems. Children of all ages are discussed, and it is clear that the experimenters are sophisticated people, well aware of the complexities of the classroom situation. The section on respondent conditioning is to be welcomed in an area where operant work has predominated. It is perhaps unfortunate that some other studies of the treatment of school phobia were not included, but at least it introduces desensitization techniques to the educational setting. The section on teacher training is brief and disappointing. Whilst the technology for training children is clearly established, different ways of training teachers are only just being evaluated.

Overall, these papers are well chosen to reflect the rich variety of studies in behaviour modification in educational settings. Unfortunately, no examples are given of applications outside the North American educational system. This is a major weakness for British readers. Our educational systems and goals are somewhat different and using American studies to illustrate the application of behaviour principles can be hazardous. More time is spent discussing the educational objectives than in examining the technology. This is useful up to a point, but this reviewer would hope that within a decade there could be as comprehensive a collection of studies from British schools. In the meantime, if used in colleges (as it should be) this book will serve a very valuable purpose in introducing aspirant teachers to a usable technology.

WILLIAM YULE

The Patient and the Analyst. The Basis of the Psychoanalytic Process. JOSEPH SANDLER, CHRISTOPHER DARE and ALEX HOLDER. George, Allen & Unwin, London, 1973. pp. 150. Hardback £2.95. Paperback £1.75.

ALL PSYCHOTHERAPISTS use certain concepts daily in their work; insight, transference, resistance, etc. but how many analysts even know how they originated and developed and can define them with accuracy? There is a reason for our difficulties which the authors of this basic textbook resolve succinctly and with a clarity which is refreshingly free from obfuscating jargon. Each of the concepts, relating to the transactions between the patient and the analyst, have had a complicated and often confusing historical development since Sigmund Freud originated them. Even Freud was continually refining and redefining his ideas and the first fifteen pages of this book contain a masterly summary of psychoanalytic history. Nine chapters are then devoted in turn to; The Treatment Alliance, Transference, Special Forms of Transference, Counter Transference, Resistance, The Negative Therapeutic Reaction, Acting Out, Interpretations, other Interventions and Insight and Working Through. Much of this material originally appeared in *The British Journal of Psychiatry*.

The authors track down the origins of each concept, usually ("insight" excepted) in Freud's writings, and then consider its development by subsequent psychoanalysts. Some bias creeps in here—no consideration is given to other schools of analysis and even within the body of Freudian theory, Melanie Klein and Fairbairn for example, are given scant space. After summarising the various meanings each concept has acquired, the authors perform what to my mind is the most valuable of their functions—they attempt a critical and definitive up-dating and point the way to its useful extension outside the psychoanalytic setting.

I can best describe this by taking the chapter on counter-transference. The term was first used by Freud in 1910 to mean those unresolved conflicts and problems aroused in the analyst during the course of his work with the patient and which consequently hinder the analyst's effectiveness. Subsequently some authors have maintained his views—Winnicott, for example, talks of "neurotic features which spoil the professional attitude"; others equate it with the analyst's transference to his patient or indeed to anything which reveals the personality of the analyst (M. Balint). It was not until 1950 that Heimann put forward the idea that counter-transference could be a valuable tool in understanding the patient.

The authors consider the implications of the two viewpoints and conclude that whilst broadening the concept to include *all* of the analysts' attitudes and personality traits renders it meaningless, it is useful to extend the concept to include "those aspects of the analyst's emotional responses . . . which may be employed by him . . . as a means of gaining insight . . . into the meaning of the patient's communications and behaviour". Finally they look at the extensions of the concept to other situations ending with the observation that it may be of diagnostic use, in, for example, hysteria (Hill).

In any form of treatment where the major therapeutic instrument is the personality of the therapist, it is necessary to understand the basic concepts this book so ably describes. It should be essential reading for all student psychotherapists and caseworkers and can be rewardingly read by medical students, general practitioners and social workers. Even experienced psychotherapists will find their understanding increased.

DORA BLACK

Interviewing: A Guide for Health Professionals. LEWIS BERNSTEIN, ROSALYN S. BERNSTEIN and RICHARD H. DANA. Appleton-Century-Crofts, New York, 1974. pp. xix + 197. No price stated.

THERE ARE many interesting books about interviewing, so is there room for another? One answer is that interviews have to be tailored to meet the needs of particular people and situations. Each professional group uses interviews for different purposes. In Britain communication skills are still given little emphasis in the training of many Medical and Nursing Students, and not much has been written specifically for them. This book arose out of the authors' experience of teaching interviewing in the Wisconsin School of Medicine and the Arizona and Montana Schools of Nursing. The first edition was sufficiently well received to encourage a new edition directed to the wider audience of "Health Professionals". Although the book may be of more general interest the examples are drawn from medical and nursing practice, and the arguments are primarily directed at doctors and nurses.

The authors start by emphasising the value of the relationship between health professional and patient. The interview is seen as the principal means of conducting this relationship. Various interviewer responses are exemplified; the evaluative, the hostile, the reassuring, the probing and the understanding. There is a discussion of the conditions for effective interviewing, and then each type of interviewer response is treated in greater depth. Detailed examples are given throughout and references are made to expert opinion and relevant research from Britain as well as the U.S.A. Two final chapters examine how communication plays an important part in dealing with patients' emotional reactions to illness and treatment, and to death and dying.

Some arguments are related to the American medical system and may jar British ears, but in general the style of writing and typography make the book easy to read and digest.

Again and again the authors bring home the importance of trying to understand the patient's feelings, and respond in a manner which communicates that understanding. But their desire to correct the tendency of doctors and nurses to ignore or avoid feelings means that very little space is devoted to history taking and obtaining specific information. On one page the fallacy is perpetuated that "The patient will give all the information we are seeking—and more—if he can be helped to tell his story in his own way in an open manner". Four pages later this statement is, quite rightly, contradicted. Reflecting feelings and listening in an accepting manner is claimed to achieve more than it often can, and in some of the examples the interviewers use additional other techniques which are not discussed in detail. Only a limited number of the difficulties encountered in interviewing are considered. However, no one book can comprehend all techniques or all uses for interviews in Medicine and Nursing. The intention here is to make some basic points about communication with patients.

This book could be valuable for Medical and Nursing Students and also Doctors and Nurses who lack training in communication skills. But it has limited scope, and those learning these interviewing techniques will need supervision and opportunities for discussion.

ANTONY COX

Study Group No. 5 – Assessment for Learning in the Mentally Handicapped. Edited by P. MITTLER. Churchill Livingstone, Edinburgh and London, 1973. pp. x + 313. £5.50.

THIS IS a report of a Study Group held in the CIBA Foundation, London, under the auspices of the Institute for Research into Mental Retardation. It is an important book as it presents the psychologists' view of their role in relation to the mentally handicapped, but in a short review it is only possible to discuss some of the topics raised.

The first two papers contain a powerful criticism of the traditional role of the psychologist as a giver of intelligence tests. There is some divergence of view as to the desirability of retaining the intelligence test. In the whole, the psychologists felt that it should be retained but should form a minor part of the full assessment procedure and might be left to non-psychologists to administer. It was felt that as most children in schools for the S.S.N. had an I.Q. under 50, as ascertained by SMO's, there was no point in further intelligence testing as this did not help in planning treatment. This questioning, of what had appeared to be a basic assumption, was typical of the proceedings generally.

Throughout the book great emphasis is laid on the need to check findings in real life situations. One of the most fruitful points was the emphasis placed on teaching as following on from assessment. The full assessment was concerned with practical activities which must be learned if the child was to adapt to his environment. Success in teaching was checked by re-assessment. A lot of time was spent on the content and application of this on-going assessment. There seemed to be a consensus of opinion that the method of teaching should follow a Skinnerian model. Again the need to check this empirically was stressed. As this method involved the complete control of the child's environment and behaviour it was suggested that it might be found to be impractical with any but the extremely young or profoundly mentally retarded.

In discussing the content of these scales the emphasis was on teaching practical skills which could be described in objective behavioural terms. It might be felt that the child development scales of Gesell, Griffiths, etc., provided a useful source of items for these scales. There were four objections to this. These scales did not necessarily provide sequences of skills. They did not necessarily measure skills crucial to development. Some items were wrongly placed in terms of age and they were relatively useless as they pre-supposed one way of learning whereas one might expect there to be several ways of achieving the same skill. Some speakers thought it would be useful to retain these scales on the understanding that they be discarded later in the light of further knowledge. Other existing scales such as the Frostig were criticized as having little practical predictive value.

Another interesting point was the need to train and use non-psychologists in the application of assessment scales and in carrying out the consequent treatment. The psychologist was seen as responsible for developing methods of assessment and treatment, as treating the difficult cases and as making their unique knowledge of mental handicap available to workers in other professions at this critical times in the care of the mentally handicapped.

As a definitive statement on how psychologists see their role, this book should be widely read. The reviewer has one reservation that the general picture may be too optimistic and may raise false hopes in parents and teachers.

Elspeth Stephen

Look: Visual Perception Materials. Wilfred Brennan, Jean Jackson and Juliet Reeve. Macmillan Education, London, 1972. Teacher's Handbook, pp. ii + 77. 80p. Master Stencil Book, pp. 16. £1.00. Work Book, 1, pp. 16. 80p per 10. Work Book, 2, pp. 16. 80p per 10. Work Book, 3, pp. 32. £1.10 per 10. Work Book, 4, pp. 32. £1.10 per 10.

Drawing heavily on the work of Kephart, Frostig and Tansley, the authors have produced four work-books of "pre-reading" activities for use mainly with infants, and remedial classes. The *Teacher's Handbook* has detailed teaching suggestions, and a useful list of additional materials and apparatus. The scheme does not introduce any novel ideas, but is well produced and easy to follow.

The first 21 pp. of the *Teacher's Handbook* is in effect a teacher's introduction to visual perception. As such it falls between two stools. On the one hand, a rationale for training children in visual perceptual activities is scarcely needed (though the detailed teaching suggestions which follow give a most valuable emphasis to the connection between visual perception and other learning experiences, particularly language). On the other, the authors' attempt to provide a quasi-theoretical underpinning is full of weaknesses.

The problem is partly that they give undue emphasis to concepts such as cross-laterality and minimal cerebral dysfunction in which the causal connection with reading problems is highly controversial. (In the case of cross-laterality they acknowledge this, but later warn that any marked deviation from an approved writing position "may well indicate cross-laterality".) More seriously, the Handbook talks in terms of visual perception while many of the *Work Book* activities are visuo-motor, and the connection between visuo-motor skills and reading difficulties is highly complex. Thus, a child may fail a maze-tracing task because of difficulties at the visual, motor or decision-making stages; even if the failure does occur at the motor stage, there is reason for doubting the importance as far as reading is concerned. (However, difficulty with visuo-motor activities has a clear implication for writing, and to this extent these activities will be useful.) A further criticism is that some of the suggestions in the Handbook could lead to errors of judgement if carried out without supervision by teachers who have had no specific training. An example is the suggested use of the "Draw-a-Man" test "in accurately assessing developmental levels".

These materials can be recommended for use in infant classes or in the remedial classes of Junior Schools. The general introductory chapters of the Handbook could usefully form the basis for a teachers' in-service training course run by a psychologist or remedial adviser, but would be misleading if taken at face value.

David Galloway

Language in the Junior School. Eric Ashworth. Edward Arnold, London, 1973, pp. 127. £1.00.
Language, Brain and Interactive Processes. Roger Gurney. Edward Arnold, London, 1973. pp. 104. £1.00.

Language in the Junior School is a well-written and provocative book, designed to encourage teachers to widen the language experience of children. The author's aim is not to prescribe methods for achieving this, although he makes many useful suggestions. Taking Halliday's "Relevant models of language use" as his theoretical base, Ashworth is concerned rather to make the reader aware of the potential of language for "making meaning". He discusses the importance of wide language experience in oral and written work, in terms of the "meanings" subsequently at the child's disposal, and of developing his ability to interpret the roles and intentions of different speakers and writers. There are excellent sections on the importance of teaching non-literal language, and on the value of group project work for extending the child's uses of language. Ashworth is highly critical of traditional methods of teaching grammar, reading and writing, such as *Janet and John*-type primers, and proposes that the teaching of these skills could be more individually meaningful if it were based upon the often-neglected linguistic ability that each child brings to the classroom.

Minor criticisms of the book could be raised, such as the selective and simplified nature of the theoretical discussions of a complex topic, the obvious difficulties of translating idealistic proposals into practice, and the absence of either an index or a bibliography. However, such criticisms do not detract from a worthwhile and readable book.

Unfortunately, the same cannot be said for *Language, Brain and Interactive Processes*. In his defence, Gurney has tackled a difficult subject about which our knowledge is limited. However, lack of a coherent theme makes it difficult to perceive the purpose of this book; nor is it clear for whom it is intended. Many different areas of scientific enquiry are presented in an unconnected and sometimes inaccurate manner; theories and experimental evidence are often misrepresented or outdated. This is particularly evident in chapters on the acquisition of language, where present knowledge is badly misrepresented, and on intellectual development, where the theories of Piaget, Bruner and Vygotski suffer equally from oversimplification. Other chapters on the evolution of the brain and of language, on speech structures and control mechanisms, and on the growth of nervous tissue, also suffer from an *ad hoc* presentation and poor literary style. The author makes liberal use of technical and theoretical terminology without explanation or definition. Too many statements are prefaced with such phrases as "It would seem that" or "It is said that", and, in the frequent absence of elaboration, the reader never knows if such statements are factual or speculative.

David Warden

Thackray Reading Readiness Profiles. Derek and Lucy Thackray. University of London Press Ltd., London, 1974. pp. 32. Specimen set, 70p; Manual, 50p; Profiles, £2 per pack of 10.

These profiles are claimed to be the first original British reading readiness test to be published. The authors do not mention Daniels and Diack's *Standard Reading Tests* which, although not identical, overlap conceptually with the Thackrays', being of particular value in the early years of the primary school.

The Thackray profiles start with a test of vocabulary and concept formation consisting of a Peabody-type approach to vocabulary. This is followed by an assessment of auditory discrimination in which children have to match initial sounds in words. Surprisingly only consonants are tested;

the teacher who is accustomed to a/u discrimination difficulties will find the omission of vowels odd.

Visual discrimination is assessed by a matching-to-sample technique using letters only. There is some attempt at tapping reversals and sequencing skills in this scale but no assessment is made of the child's use of word shape.

The final scale is called "general ability" and is no more than a simplified scoring for the Draw-a-Man test. Apart from the vagueness of the concept of intellectual maturity the use of this part of the battery is questionable because of the alarming page of interpretations of errors given. Despite words of caution some teachers will fasten on an absence of legs as suggestive of insecurity and one wonders if this will be in the child's best interest.

The profiles were standardised on 5,500 children aged 4/8 to 5/8. This rather narrow age limit, plus the use of a stringent item analysis, means that the scales have a high floor: the visual discrimination profile, e.g. omits single letters. Split half reliability is between 0·8 and 0·9 and early versions of the whole scale have a predictive validity of between 0·4 and 0·6. No factor analysis is quoted but a correlation matrix gives a range of inter scale coefficients of 0·31 to 0·52.

It would cost a three-form-entry primary school £24 to give this test to its new entrants. The value of such a blanket use is not yet proven. An experimental evaluation of the use of this test is necessary before conclusions can be drawn but initial thoughts about it are lukewarm.

RICHARD LANSDOWN

Marihuana Users and Drug Subcultures. B. D. JOHNSON. Wiley, New York, 1973. pp. xv + 290. $12.95.

SOFT DRUG use has attracted fewer extensive studies than narcotic use and this report of marihuana use in 3500 New York college students, conducted in 1970 by a professor of sociology, is a valuable addition. Professor Johnson convincingly proposes a "subculture theory" in which the sociological patterns of peer group behaviour emerge as the main criteria determining cannabis use. His data identifies two main student subcultures, developing from different racial backgrounds—a white subculture predominantly involved in soft drug use and a black subculture oriented towards narcotics. He rejects frequency of cannabis use as important in progression to narcotic drugs and demonstrates that drug selling is the main indicator of progressive drug abuse. Involvement in the sale of drugs emerges as the significant link between cannabis use and progression to hard drugs, delinquency, political militancy, sexual permissiveness and academic underachievement.

Professor Johnson concludes that current legislation, by creating this drug selling link, serves to maintain and extend the drug subculture. He provokes important questions which his sociological study cannot answer but his tendency to dismiss the relevance of psychological factors to his sociological criteria creates an oversimplified view. His inferences would require a more comprehensive study to be convincingly maintained. The writing, though repetitive, is lucid and unemotive. Professor Johnson's conclusions will not be innovatory to research workers in drug dependency and his college subjects will be unfamiliar to most British drug clinics. His book will be of most interest to student health workers as a comprehensive descriptive survey of patterns of drug use in a student population.

ALISTAIR M. GORDON

problem solving,
teaching

Vood, David, Bruner, Jerome S. and Ross, Gail (1976) The role of tutoring in problem solving. *J. Child Psychol. Psychiat.* **17,** 89–100.

Summary—3-, 4-, and 5-yr-olds were tutored in the task of constructing a pyramid rom complex, interlocking constituent blocks. The results indicate some of the properties f an interactive system of exchange in which the tutor operates with an implicit theory f the learner's acts in order to recruit his attention, reduce degrees of freedom in the ask to manageable limits, maintain "direction" in the problem solving, mark critical eatures, control frustration and demonstrate solutions when the learner can recognize hem. The significance of the findings for instruction in general is considered.

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maternal and peer, separation,
monkeys

uomi, Stephen J., Collins, Mary L., Harlow, Harry F. and Ruppenthal, Gerald C. (1976) Effects of maternal and peer separations on young monkeys. *J. Child Psychol. Psychiat.* **17,** 101–112.

ummary—Rhesus monkeys reared with mothers and peers for the first 6 months of fe were subjected to three consecutive 2-week periods of social separations, progressively ncreasing the degree of social isolation for the infants. During each period of social eparation—mesh permitting physical contact with mothers, physical but not visual eparation from mothers but unlimited access to peers, and finally physical separation rom both mothers and peers—clear patterns of protest and despair were recorded. Reactions to mesh separations were mild relative to the latter two separations, both qually debilitating. Following reunion, separated subjects returned to behavior patterns similar to those of nonseparated control monkeys. Later in the study mothers vere removed permanently from the homecages of all subjects, and all subjects reacted vith protest and cessation of play activity. However, there was little evidence of despair nd previously separated and control monkeys reacted in similar form despite their different early histories.

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minor physical anomalies,
hypoactivity in girls,
constitutional defects

Waldrop, M. F., Bell, R. Q. and Goering, J. D. (1976) Minor physical anomalies and inhibited behavior in elementary school girls. *J. Child Psychol. Psychiat.* **17,** 113–122.

Summary—Elementary school girls who tended to be inhibited and socially ill at ease had significantly more minor physical anomalies than did girls who were outgoing and spontaneous. The procedure to assess anomalies required less than 10 min per child. The association of anomalies with inhibition was significant regardless of the effects of poor coordination, low I.Q., or high rate of absenteeism. These and previous findings indicate that the minor anomalies are associated with a major behavior problem for girls (hypoactivity) and with a major behavior problem for boys (hyperactivity). Possible reasons for sex differences in behavior associated with the same congenital physical characteristics are discussed.

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prior preparatory interval and reinforcement

Kupietz, Samuel, S., Camp, Janet A. and Weissman, Arthur D. (1976) Reaction time performance of behaviorally deviant children: effects of prior preparatory interval and reinforcement. *J. Child Psychol. Psychiat.* **17,** 123–131.

Summary—The visual reaction time (RT) of 16 behaviorally deviant and 16 nondeviant children was measured by a modified irregular RT procedure under conditions of reinforcement and nonreinforcement. Deviant and nondeviant children were similarly influenced by the prior preparatory interval (PPI), but deviant children were slower in overall response speed. Although reinforcement did not differentially alter the PPI effect in either group, it did succeed in "normalizing" the RT deficit exhibited by deviant children. This latter finding was discussed in terms of motivation level as a basis for the RT differences observed in this and prior studies using similar clinical pediatric populations.

language use, retarded,
quality of care

Pratt, Michael W., Bumstead, Dennis C. and Raynes, Norma V. (1976) Attendant taff speech to the institutionalized retarded: language use as a measure of the quality f care. *J. Child Psychol. Psychiat.* **17,** 133–143.

Summary—An observational measure of adult speech to children, developed by Tizard *et al.* (1972) was modified and applied to residences for retarded adults. The neasure categorizes the major functions of staff talk to residents as "control" and "infornation". Results resembled the findings of Tizard *et al.* (1972)—"informative" staff peech was more complex and its frequency was associated with resident language omprehension abilities. The speech measure was related to another index of the quality f care provided in such facilities. Ability (mental age) of resident speech "targets" vas also found to affect the frequency of informative remarks by staff.

anger arousal competition,
boys' aggressive behaviour

Perry, David G. and Perry, Louise C. (1976) A note on effects of prior anger arousal nd winning or losing a competition on aggressive behaviour in boys. *J. Child Psychol.* **17,** 145–149.

Summary—Boys were either angered or not angered by a peer and then assigned to one of three competition conditions (successful competition, unsuccessful competition, or a no competition control condition). Finally, they were tested for aggression toward the peer. Competition led to increases in aggression, although the magnitude of this effect depended on level of anger arousal, form of competition and measure of aggression. The finding that previously angered boys delivered aversive stimulation of greatest duration following successful competition led to the conclusion that winning a competition reinforces angry children's attempts to even the score with their adversary and consequently leads to increases in aggressive responding.

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   Examples:

   SEARS, R. R., WHITING, J. W. W., NOWLES, V. and SEARS, P. S. (1953) Some child-rearing antecedents of aggression and dependency in young children. *Genet. Psychol. Monogr.* **47,** 135–234.

   PIAGET, J. (1953) *The Origins of Intelligence in Children* (Translated by Cook, M.), Routledge & Kegan Paul, London.

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E 7 JUL 1976

JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY

1976 VOLUME 17 NUMBER 2 APRIL

CONTENTS

DAVID WOOD, JEROME S. BRUNER and GAIL ROSS: The role of tutoring in problem solving 89

STEPHEN J. SUOMI, MARY L. COLLINS, HARRY F. HARLOW and GERALD C. RUPPENTHAL: Effects of maternal and peer separations on young monkeys 101

MARY F. WALDROP, RICHARD Q. BELL and JACOB D. GOERING: Minor physical anomalies and inhibited behavior in elementary school girls . 113

SAMUEL S. KUPIETZ, JANET A. CAMP and ARTHUR D. WEISSMAN: Reaction time performance of behaviorally deviant children: effects of prior preparatory interval and reinforcement 123

MICHAEL W. PRATT, DENNIS C. BUMSTEAD and NORMA V. RAYNES: Attendant staff speech to the institutionalized retarded: language use as a measure of the quality of care 133

DAVID C. PERRY and LOUISE C. PERRY: A note on the effects of prior anger arousal and winning or losing a competition on aggressive behaviour in boys 145

Annotation:

ELIZABETH M. ANDERSON: Special schools or special schooling for the handicapped child? The debate in perspective 151

Book Reviews 157

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CORRELATES OF EGO-LEVEL AND AGENCY-COMMUNION IN STAGE REM DREAMS OF 11–13 YEAR OLD CHILDREN

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INTRODUCTION

THE DREAM material made available by stage REM awakenings has led to numerous investigations into the relationship of dream content to waking experience (Foulkes, 1970). In general, these investigations do not lend support to the notions that dreams function to preserve sleep or that they are primarily disguised wish fulfillments (Breger, 1969; Foulkes, 1967; Hall, 1966; Ullman, 1962). Freud's (1900) view of the dream as servicing the demands of the unconscious by disguising the latent content via distortion, condensation, and displacement before it becomes manifest has not been substantiated empirically (Ullman, 1962).

Nor has it been shown that unconscious strivings, which are the obverse of the trends a person has emphasized in conscious thought, provide the subject matter for dreaming (Cohen and Wolf, 1973). "Complementarity" is the position which stresses such unconscious strivings, and it is basically derived from Jung (1960).

In contrast to the complementarity viewpoint, the "continuity" view takes the position that the problems, concerns, and affects of waking behavior continue to be reflected in dreams; that is, a continuous relationship exists between dreaming and waking thought and behavior (Shulman, 1969). The continuity position is consistent with Adler (1958), who viewed dreams, ". . . in the same line as other movements and expressions of life..." (p.98). This position has found much support in REM dream research (Foulkes, 1973).

Studies relating personality variables to dream content (Ben-Horin, 1967; Cohen and Wolf, 1973; Foulkes and Rechteschaffen, 1964; Hersen, 1971; Kramer *et al.*, 1969; Pivik and Foulkes, 1968) are in harmony with the continuity view. Foulkes (1967) reported that characteristically more vivid and unrealistic dream content was related to behavioral disorders of waking life in four pre-adolescent males. This relationship between disturbed life and disturbed dreams was pursued more systematically in a subsequent study of behaviorally disordered adolescents and a control group (Foulkes *et al.*, 1969).

The normative nature of REM dream content may also be considered as supportive of the continuity position (Snyder *et al.*, 1968). Representatively sampled REM dreams are generally more mundane than bizarre. Children's dreams, for example, are relatively realistic in terms of characters, settings, and activities (Foulkes *et al.*, 1967). They contradict Hall's (1966) contention that dreams of children are "dreadful", traumatic affairs, rather than revolving around daily experience.

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EGO AND DREAMING

Thus, waking descriptions of various personality attributes and deficits have been shown to correlate with dreams. This evidence of continuity is in conflict with the view that dreams are distorted id derivatives but is congruent with the Adlerian–Eriksonian model of dreams portraying the needs, struggles, and "joys" of the ego. Ego, ". . . makes it possible for man to bind together the two great evolutionary developments, his inner life and his social planning . . ." (Erikson, 1961, p. 149) which result in mastery. There is relatively little loss of ego in sleep; it continues to gate out cognitions which are irrelevant, and focus on integrating observations from the environment of the individual into a coherent framework.

Such integration in wakefulness assumes different forms according to the developmental stage at which the individual is functioning. Loevinger and Wessler (1970) have hypothesized eight stages of ego development, which closely parallel Erikson's (1950). With increasing ego development, interpersonal style moves from the simplist form of autistic behavior to behavior which is ". . . intensive, responsible, mutual . . ." (Loevinger and Wessler, 1970, Vol. 1, p. 6). Individuals are assumed to have behaviors which fall into different developmental stages, although ". . . each person has some level of core functioning". (*Ibid.*, p. 12). One of the goals of the present study is to extend knowledge of ego continuities between dreams and waking life by examining whether Loevinger and Wessler's waking assessment scheme for level of ego development can predict the level of ego development shown in stage REM dreams.

EGO DEVELOPMENT AND SEX DIFFERENCES

Within all existing formulations of ego development, and within the traditional view of "ego strength", there has been a bias toward describing optimal ego functions in masculine terms, rather than looking at the environments of men and women separately. Gutmann (1965) formulated a view that the egos of males and females develop according to the contingencies of their different environments. His hypothesis is supported in a study by Carlson (1971) which demonstrated that, "Males tend to experience and represent the self in individualistic terms; females tend to experience themselves in terms of interpersonal relatedness. . . . These roles emanating from two different psychological ecologies." (Carlson, 1971, p. 268.)

The Eriksonian psychosocial view of ego development attributes these differences to constitutional factors. For Erikson, boys' play, fantasies, and dreams are intrusive in character, particularly for the preadolescent (Erikson, 1964), while the female ego tends more toward incorporativeness and acceptance. There is still controversy as to whether these stereotypic, sex-linked modalities are a consequence of inherited gender, or whether they reflect learned sex-roles. Either way, however, their existence suggests that any investigation of ego development in dreams must be sensitive to inter-sex differences in the form such development may take. Thus, a second goal of the present study is to determine sex differences in dreams which may express the different paths followed by girls and boys in their ego development.

AGENCY AND COMMUNION

The operational translation of Eriksonian modalities which will be employed here derives from Bakan's (1966) distinction between gender and sex role. "Gender" is the anatomical division into male and female. "Sex role" implies a style of relating that can be independent of the subject's gender. Thus, a gendered male can enact a female sex-role. Bakan's modal sex-role constructs are agency ("male") and communion ("female"). Characteristics of agentic functions are libido, assertive behavior, aggression, danger, conquest risk, self-sufficiency, and success. Communion is characterized by social consciousness, interpersonal concerns and interests, generosity, and receptivity (Bakan, 1966; Carlson, 1971; Cohen, 1973).

Carlson (1971) was able to assign agentic and communal themes to subject's responses to specific affective experiences. Males tended to have agentic themes while females' themes were communal. Negative affects tended to be associated with agentic themes.

In a study which did not use physiological monitoring to sample dreams representatively, Cohen (1973) attempted to use agency and communion to discriminate "masculine" and "feminine" dreams. He categorized male and female college students in terms of masculinity or femininity (sex role), regardless of gender. Masculine subjects' dreams were rated higher on agency than were the dreams of feminine subjects. Feminine males had higher measures of communion than did masculine males, thus suggesting that learned sex-role, rather than gender, is critical to styles of ego representation.

SEX ROLE DIFFERENCES IN DREAM CONTENT

In addition to Cohen's (1973) study, a number of other investigations have been concerned with sex differences in dream content, although not specifically focusing on the agency versus communion dimension. Some of these studies have been basically descriptive in nature. Foulkes and Shepherd (1972), for instance, reported that boys' laboratory dreams contained more portrayal of physical activity than did girls', while girls' dreams had more female-peer characters.

Brenneis (1970) studied young adults' non-laboratory dream content in order to ascertain differences in male and female ego modalities, and attempted to integrate content and affect with Erikson's and Gutmann's theoretical positions. Subjects were asked to record their dreams over a period of time. These were coded according to ". . . setting, characters, action, affect, sensory impressions, temporal sequence, and reality orientation" (p. 436). Female dreams took place more often in indoor settings, fewer events took place beyond the female dreamer's control, and the female dreams contained a greater number of other persons than did the male dreams. The affective mood of males' dreams was less pleasant than that of females' dreams. The protagonist in female dreams was more likely to be entering enclosed space, and to be oppositional rather than assertive.

Thus various studies, some focusing on gender and some on sex role, seem to support the hypothesis of continuity between waking and dream expression of sex-related concerns. However, none have combined the representative sampling of dreams in a sleep laboratory (e.g. Foulkes and Shepherd, 1972) with a conceptualization of sex differences in terms of levels or styles of ego development (Brenneis, 1970; Cohen, 1973), as they apply to subjects young enough to be in the midst of the struggle for sex-role identity (e.g. Foulkes and Shepherd, 1972).

THE PRESENT STUDY

In this study, male and female subjects on the threshold of adolescence have had their REM dreams collected in a sleep laboratory and examined in terms of the levels and styles of ego development reflected therein. Of specific interest were these questions: Would waking ego-developmental level be reflected in manifest dream content? Would representations of different sex-linked modalities of ego-functioning, such as agency versus communion, discriminate male and female dreams? The following predictions were made:

1. Waking ego level, as measured by the Sentence Completion Test (Loevinger and Wessler, 1970; Loevinger *et al.*, 1970) will be congruent with that seen in manifest dream content.
2. Agency and communion themes (separateness versus union; competition versus generosity; libido versus eros) will differentiate male and female dreams.
3. Waking sex-role orientation, as determined from the Children's Personality Questionnaire (Porter and Cattell, 1960), will be more powerful than gender itself in distinguishing agentic dreamers from communal dreamers.

METHOD

Subjects

*S*s were participants in the third year of a five-year longitudinal study of children's dreams at the University of Wyoming Sleep Laboratory (Foulkes, 1971). Initially, *S*s were solicited through an advertisement in a daily newspaper describing the longitudinal nature of the study and the remuneration for participation. Children chosen for the sample did not manifest any behavioral disorders and teacher and parent ratings corroborate this judgment. Familes of *S*s were broadly within the middle class socio-economic stratum. They were eight girls, aged 11-2–13-4, and 12 boys aged 11-9–14-3. (Ages are given as of mid-year—1 December 1970—of the third year of the dream study. As of that date, 15 of the 20 *S*s were aged 11 or 12, with a median group age of 12-7.) All of the girls and six of the boys had served two previous years in the study, while for six other boys, this was their first year in the study. Systematic contrasts (Foulkes *et al.*, 1974) revealed no significant dream differences between the long term and newly recruited boy subjects. Sleep data indicated that *S*s were adapted to sleeping in the laboratory setting.

Full Scale I.Q.'s, as measured by the Wechsler Intelligence Scale for Children, were within the average to very-superior range of intellectual functioning, with the exception of two male *S*s whose Full Scale I.Q.'s were in the dull-normal range. The mean I.Q. for the males was 106·4 and for the females was 115·8. This difference was not significant. Mean I.Q. for the whole group was 110·2.

Additional information on the *S*s (mode of recruitment, incentives, demographic and test data) is to be found in other reports (Foulkes, 1971; Foulkes and Shepherd, 1972; Foulkes *et al.*, 1974).

Dream collection procedure

During year three of the longitudinal project, all *S*s spent nine nights, scheduled non-consecutively at one to one and one-half month intervals, in the laboratory. On each such night, three awakenings were scheduled for the retrieval of dream content. Fifteen of the 27 scheduled awakenings were to be made from REM sleep, and it is reports from these awakenings which are analyzed here. To ascertain sleep stage, continuous EEG and EOG (electrooculogram) recordings were taken on each session. REM periods were sampled on different nights at different times of night to yield a representative picture of the course of *S*s' sleep mentation throughout the night.

Upon arousal from sleep, *S* was questioned concerning his pre-awakening mental activity. The interviewer followed a standardized format in conducting the interviews. All interviews were electrically transcribed for later analysis. The dream interviewer did not participate in any other part of the present study.

The *Ss* of the present study reported 194 REM dreams on 292 REM sleep awakenings during year three of the longitudinal study, for a recall rate of 66·4%. Individual REM recall rates ranged from 6·7–100%, with a median subject REM recall rate of 79·3%.

Further information on the dream-retrieval procedures of the study is available in earlier reports from the longitudinal project (Foulkes, 1971; Foulkes and Shepherd, 1972; Foulkes *et al.*, 1974).

Test data

Ss were administered Loevinger and Wessler's (1970) Sentence Completion Test (SCT) in a daytime test session during the year in which the dreams were collected. Administration was individual, and by a laboratory secretary. The protocols were typed from their original handwritten form and assigned random code numbers. *Ss*' names were removed from the coded transcripts. Gender, however, was identifiable by the difference between item composition of the male and female SCT forms. All responses were scored by the author and a second scorer according to the procedures outlined by Loevinger and Wessler. Each of the 36 item responses on each test was assigned an ego level (I-level) rating, following the format outlined by Loevinger and Wessler (1970). Total protocol ratings (TPR) were then assigned, following Ogive rules applied to the cumulative frequency distribution of item ratings. Inter-judge reliability was 0·90 (Pearson r indicating their agreement on assignment of TPR to *Ss*). The SCT was used in this study to assess *Ss*' waking levels of ego development.

WISC's also were collected from each *S* during the year in which dreams were collected. The WISC was used in this study to determine the normative nature of the subject pool, and also to determine correlations between I.Q. and other variables of interest.

The Children's Personality Questionnaire (CPQ) Form B (Porter and Cattell, 1960) was individually administered during the same year of dream collection. The CPQ was used in this study to attempt to isolate personality factors with sex differences. These factors then could be used to define sex-role in tests of the relative power of gender and of sex-role in determining dream differences in agency versus communion.

Dream analysis

Transcripts of the *Ss*' stage REM dreams were prepared from the tape-recorded nocturnal-awakening interviews. The reports were assigned random code numbers, and all identifying data (*Ss*' names, sex, siblings' names, etc.) were removed from the tests of the dreams before their analysis in this study.

Ego level was scored in dreams using the same conceptual framework utilized in scoring the SCT. Each dream was scored as a thematic unit and each was given an overall I-level rating. With each individual dream treated as an "item", *Ss* then were given overall dream ego-level ratings in the same manner as items were used to generate *S* scores on the SCT. One hundred and ninety-four dreams were rated by the same two judges as above. Inter-judge reliability (Pearson r for *S* classification) was 0·86. The mean number of available dreams for male *Ss* was 8·83, for female *Ss* it was 11·00 (for all *Ss* together, it was 9·70). Four dreams however, proved unscorable for ego-level, and were omitted from further analysis of this variable.

All 194 dreams were scored for agency versus communion using the following criterion: *Agency:* Success; intrusion; separateness or aloneness (if welcomed by dreamer); aggression; danger; libido (sexuality as conquest); and *Communion:* concern about others' welfare; social acceptance; dependence; altruism; eros expressed as affection, sympathy, empathy. The same two judges were used as before, and they classified each dream as either agentic or communal. Again, four dreams proved unscorable, and were omitted from further analysis of this variable. Inter-judge agreement was 88% (excluding four unscorable dreams) for agentic–communal classification. Percent agreement was determined by assessment of inter-judge agreement on classification of individual dream reports.

One judge's scores were used in all further data analysis on the classification of dream reports as agentic versus communal or on their assignment of an ego level.

RESULTS

Prediction

Descriptively, the *S*s as a whole fell within the I–3 level of ego development as measured on the SCT. The attributes of this ego level lie mainly in the realm of conformity. The difference between male and female SCT ratings did not achieve significance.*

TABLE 1. CORRELATIONS* BETWEEN CPQ PERSONALITY FACTORS AND STAGE REM DREAM VARIABLES

	All subjects	
	Dream variables	
CPQ factors	Ego level in dreams	% of agentic themes
A	0·20	−0·16
B	0·15	−0·24
C	0·01	−0·05
D	−0·25	0·13
E	0·08	0·20
F	−0·35†	−0·03
G	0·17	−0·17
H	−0·04	0·12
I	−0·12	−0·22
J	0·11	0·32†
N	−0·29	0·08
O	−0·32†	0·16
Q_3	0·43**	0·02
Q_4	−0·15	−0·01

*Pearson Product Moment Correlations.
† $p = 0·10$, two-tailed; $p = 0·10$ at $r = 0·30$; ** $p = 0·05$, two-tailed; $p = 0·05$ at $r = 0·36$; *** $p = 0·01$, two-tailed; $p = 0·01$ at $r = 0·51$.

In applying the ego-level analysis to *S*s' dreams, the mean ego level rating for the group was I–3. For the females, it was somewhat higher but still within the I–3 level. No significant differences were found between males and females on this measure.

SCT ego levels were correlated with ego-levels in dreams. For the whole group $r = 0·50$, $p < 0·01$.† For females, $r = 0·70$, $p < 0·02$. For the whole group, then, waking ego level is continuous into dreams, although more so for females than for males.

Significant correlations were found between the ego scores in the stage REM dreams and Full Scale WISC scores. The higher the I.Q. score, the higher the ego level in dreams. For the entire group, $r = 0·53$, $p < 0·01$. For males $r = 0·57$, $p < 0·02$.

For all *S*s, waking ego level (SCT) correlated with I.Q., 0·52, $p < 0·01$. For

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*This, and subsequent male–female differences were tested with the *t* test for independent observations, two-tail.

†All correlations are Pearson Product Moment, and all probabilities reported for these correlations are two-tail.

boys alone, the correlation was 0·56, $p < 0{\cdot}02$. In order to ascertain if the correlation between SCT rating and ego level rating of stage REM dreams was merely a function of the positive correlation of these two measures with I.Q., a partial correlation was conducted. With WISC I.Q. held constant, the SCT-dream correlation was markedly reduced ($r = 0{\cdot}12$)* for males. But for females there still was a strong SCT-dream correlation ($r = 0{\cdot}69$, $p < 0{\cdot}04$).* Thus, waking ego level, *per se*, is more closely related to dream ego-level for girls than for boys, while ego level in boys' dreams seems to be more strongly correlated with waking I.Q.

The more scorable dreams *S*s reported, the higher were their I.Q.'s ($r = 0{\cdot}45$, $p < 0{\cdot}02$). This correlation was more significant for males alone ($r = 0{\cdot}50, p < 0{\cdot}01$). Thus, once again, I.Q. seems more strongly related to dream phenomena for the male *S*s than for the females.

Prediction 1, that waking ego level will correlate with dream ego level, was substantiated. In addition, intellectual functioning as measured by the WISC correlated with dream ego level, and both these measures correlated with the mean number of stage REM dreams. However, the effects of these factors are gender-related, with waking ego level a stronger determinant of dream ego level for girls, and waking I.Q. a more powerful determinant of dream phenomena for boys.

Prediction 2

Of the 190 stage REM dreams scored, 55% were agentic. For the males alone, 68% of the total dreams were scored agentic, as compared with only 40% for the females. Since the individual dream reports are not independent observations, it was necessary, for statistical testing, to classify *S*s as either primarily agentic or primarily communal. Five females were primarily communal and three were primarily agentic. Three males were primarily communal, while nine were primarily agentic. The sex difference is significant at the 0·05 level (Fisher exact-probability test). Thus, Prediction 2 was confirmed.

Prediction 3

The Children's Personality Questionnaire data revealed male and female *S*s to be relatively homogeneous on personality factors measured by the CPQ (Table 2). There was little evidence of the kind of gender differentiation required of CPQ scores were they to function as sex-role variables in the same manner in which Cohen (1973) was able to use the California Personality Inventory.

Table 1 presents CPQ correlations with REM rating variables for all *S*s, while Tables 2 and 3, respectively, contain these correlations separately for males and for females. Table 1 shows that no CPQ score was significantly correlated (at $p < 0{\cdot}05$) across the sexes with the percentage of agentic themes in *S*s' dreams. Thus, the third prediction, that CPQ dimensions related to sex-role would predict dream agency-communion better than would *S*s' gender, was *not* confirmed.

Table 1 also shows that there was one significant (at $p < 0{\cdot}05$) correlation across sexes between dream ego level and the CPQ. *S*s who, on the CPQ, were more controlled (self-disciplined, compulsive, etc.; Factor Q_3) showed higher levels of ego development in their REM dreams. This correlation, of course, is another

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* Partial correlation coefficient.

TABLE 2. CORRELATIONS* BETWEEN CPQ PERSONALITY FACTOR SAND STAGE REM DREAM VARIABLES

	Males	
	Dream variables	
CPQ factors	Ego level in dreams	% of agentic themes
A	0·06	0·06
B	0·33	0·11
C	−0·22	−0·20
D	−0·47**	0·26
E	−0·23	0·01
F	−0·75***	−0·33
G	0·26	0·08
H	0·07	0·01
I	0·08	0
J	−0·11	0·23
N	−0·56	0·15
O	−0·37	0·26
Q_3	0·81***	0·13
Q_4	−0·10	−0·24

*Pearson Product Moment Correlation.
† $p = 0{\cdot}10$, two-tailed; $p = 0{\cdot}10$ at $r = 0{\cdot}38$; ** $p = 0{\cdot}05$, two-tailed; $p = 0{\cdot}05$ at $r = 0{\cdot}45$; *** $p = 0{\cdot}01$, two-tailed; $p = 0{\cdot}01$ at $r = 0{\cdot}62$.

TABLE 3. CORRELATIONS* BETWEEN CPQ PERSONALITY FACTORS AND STAGE REM DREAM VARIABLES

	Females	
	Dream variables	
CPQ factors	Ego level in dreams	% of agentic themes
A	0·26	−0·23
B	−0·07	−0·64**
C	0·43	0·29
D	0·25	0·43
E	0·58**	0·16
F	0·35	0·23
G	−0·03	−0·49†
H	0	0·07
I	−0·53†	−0·46
J	0·25	0·80***
N	0·61**	−0·13
O	−0·22	0·03
Q_3	−0·38	−0·01
Q_4	0·36	0·20

*Pearson Product Moment Correlations.
† $p = 0{\cdot}10$, two-tailed; $p = 0{\cdot}10$ at $r = 0{\cdot}49$; ** $p = 0{\cdot}05$, two-tailed; $p = 0{\cdot}05$ at $r = 0{\cdot}55$; *** $p = 0{\cdot}01$, two-tailed; $p = 0{\cdot}01$ at $r = 0{\cdot}76$.

piece of evidence in favor of ego continuity between wakefulness and REM sleep.

Although specific predictions were not made concerning sex differences in CPQ-dream correlations, some interesting results did emerge from the separate male and female correlation tables (Tables 2 and 3). While no CPQ variable correlated with agency in males' dreams, two factors did so significantly ($p < 0{\cdot}05$) for girls: Intelligence ($r = -0{\cdot}64$) and Doubt (0·80). Girls characterized as less intelligent and abstract-thinking, but more individualistic, doubting, and obstructive in waking life had more agentic dreams.

The separate male and female CPQ correlations with dream ego-level reveal different correlates for boys and girls. At $p < 0{\cdot}05$, it is assertive (Factor E) and shrewd (Factor N) girls, but unexcitable (Factor D), sober (Factor F), uncalculating (Factor N), and controlled (Factor Q_3) boys, who show relatively high levels of dream ego functioning. Given current sex-role assignments in American society, these findings may reflect the need for girls to avoid the traps of "niceness" and passivity in order to achieve full ego growth, and the boys' need to exert effective impulse control in order to achieve full ego growth. It is of interest that it is the boys alone who show a significant Q_3 (control) correlation with dream ego level, whereas SCT ego level correlated with dream ego level better for girls than for boys. Apparently there is ego-continuity across states for both sexes, but different waking measures of ego competencies are differentially sensitive to this continuity for boys and for girls. This supports the earlier contention that studies of ego development in youth and adolescence must be attuned to the ways in which sex-typing becomes entwined with ego growth.

DISCUSSION

Continuity

The continuity thesis is borne out by several kinds of data from the present study, e.g.

1. There was a significant positive correlation between dream ego level and SCT ego level.

2. I.Q. correlated positively and significantly with dream ego level.

3. Modal male–female waking differences in agency versus communion were reflected in dreams.

No evidence observed in the study, on the other hand, can be characterized as contradictory to the continuity thesis.

Ego evidence

The evidence on sleeping-waking continuity in ego level actually goes beyond the mere demonstration of the positive correlation of ego measures in the two states. Even more striking was the finding that the absolute level of ego functioning was identical in dreams and in wakefulness. This latter result is among the most con-convincing data ever brought forth in support of an "ego theory" of dreaming (Erikson, 1950). It argues against characterizations of dream thought as disorganized, illogical, regressive or primary-process. It argues against any theories (e.g. Freud, 1900) which propose qualitative differences between waking and sleeping thought.

Two interesting sets of observations extended the data on ego continuity between wakefulness and sleep: (a) I.Q. as well as waking ego level, was correlated with dream ego level. For reasons not entirely apparent, this was true more for boys than for girls. The differential power of SCT and I.Q. measures in predicting girls' vs boys' dream ego level suggests the need for further study of sex-linked factors in ego development. (b) Even more strongly supportive of this last suggestion was the observation of different CPQ correlates for boys' and girls' dream ego level. In line with observations of waking development in American society, these data indicated that successful ego differentiation for boys may hinge upon the achievement of impulse control, while for girls it may depend upon rising above stereotyped prescriptions of "niceness" and passivity. This statement must be taken with caution, however, due to the small sample size. Maccoby (1966) found aggressiveness and impulsivity to correlate positively with overall intelligence and social competence for girls, where aggressive, impulsive boys tended to be less intelligent and less competent socially.

Agency vs communion

Male dreams were more agentic, female dreams more communal. This finding is consistent with Carlson's (1971) study of waking thought and with Cohen's (1973) study of home-reported dreams. It supports Bakan's (1966) thesis that agency versus communion will differentiate males from females over a wide range of conditions.

No CPQ measure correlated significantly with agency in boys' dreams. However, girls who were low in intellectual competence, low in conscientiousness, but high in doubt, obstruction, and individualism, had more agentic dreams than did their peers. All of these traits represent deviation from the modal female sex-role prescribed for girls in American society. The conscientious, rule-bound female, for instance, is fulfilling a role she has been taught from birth (Maccoby, 1966), while the undependable female is atypical. Likewise, girls who are doubting, obstructive, individualistic, and unwilling to act fall outside conventional sex stereotypes (Kagan, 1962). Thus, these data are consistent with the implication of Prediction 3 that those of one gender, but with sex-roles more typical of the other gender, will have dreams which follow sex-role rather than gender determinants.

More formal tests of sex-role versus gender determinants of agency versus communion in dreams, however, were hindered by failure of the CPQ to produce dimension discriminating males from females. Many observers have noted a blurring of behavioral differences between boys and girls in late preadolescence. For example, Deutsch (1944) writes that, "The presence of a strongly bi-sexual tendency shortly before the conflicts of adolescence . . . is less repressed in girls than in boys. In this period of their life girls are quite willing to stress their masculinity . . ." (p. 78). Thus, late preadolescence may be a relatively inappropriate time in which to have tested Prediction 3; tests of adolescence, or post-adolescence, would likely prove more fruitful (cf. Cohen, 1973).

Other suggestions for further study include the possibility of analyzing agency and communion dreams into subtypes. In the present dream sample, for instance, female agentic dream themes seemed to differ somewhat in quality from male agentic dream themes. Female agency appeared to stress aloneness and accomplishment, where male agency seemed to have more aggression and violence. As Carlson

(1971) has stated, ". . . 'machismo' is clearly agentic—but clearly not identical to the quality of agency defined as 'achievement motivation'." (p. 276)

SUMMARY

Twelve male and eight female children, median age 12 yr, 7 months, slept in the laboratory on nine non-consecutive nights over a year's time. Stage REM dreams were collected. *S*s were also administered a personality measure (CPQ), an intelligence test (WISC), and an instrument to assess ego level (SCT). The study was designed to examine: (a) the relationship between waking ego level and ego level assessed in stage-REM dreams; (b) male and female dream representations of Bakan's (1966) dimensions of agency and communion; and (c) sex-role differences on the CPQ in relation to agency-communion in dreams. Ego level was found to be continuous from the waking measure (SCT) into dreams, and to be of a comparable absolute level in the two conditions. Male *S*s' dreams were rated primarily agentic, whereas females' dreams were primarily communal. Failure of CPQ scales to show strong gender differences made it difficult to test the proposition that waking sex-role differences would be stronger determinants of dream agency-communion than gender itself.

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THE FURTHER DEVELOPMENT OF TWINS AFTER SEVERE AND PROLONGED DEPRIVATION: A SECOND REPORT

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THIS PAPER follows up a previous study of severe and prolonged deprivation of twin boys born in 1960 (Koluchová, 1972). From age 18 months until 7 yr they had been isolated and cruelly treated, such that on discovery they could barely walk, suffered from rickets, were frightened of normally familiar objects, and failed to understand the meaning or function of pictures. Their I.Q.'s were in the forties. Although their subsequent development had been surprisingly good even at the time of the first report, and it was possible to exclude gross damage of their intellect and personality, a number of problems remained which could only be solved in a long-term study. The importance of observing the case over a long period was emphasized also in Clarke's (1972) commentary. Having observed the twins until now, the author wishes to record their further development, to mention similar cases and to arrive at some more general conclusions concerning the diagnosis and remediation of severe deprivation.

In the school year 1971–1972, the twins, then aged between 11 and 12, attended the third class. Their speech was entirely adequate for their age, both in form and content. As the predictions of speech pathologists and paediatricians concerning the development of speech had been rather pessimistic, an attempt will be made to explain the fact that their speech is at a good level and allows full social integration.

Until the eleventh month of their age the children had lived in an infants' home, then—for a shorter period of time—in a family of their relatives and later, in a home for toddlers. According to the available records of the infants' home, the children had been developing adequately for their age. It is possible to assume that at that time, which is often regarded as a preparatory period for speech, and during which a mainly passive knowledge of a language is developed, the children had mastered actively several words and had comprehended the communicative function of speech. They had probably retained those abilities during the whole period of deprivation, mostly in a latent form only, because the small amount of speech they had been used to hear between 18 months and 7 years, had not had a communicative character for them. The basic prerequisite for the development of speech had also been missing, i.e. the individual contact of an adult with a child and the resulting positive stimulating relationship. But, although the period until their third year, which is often considered the terminal limit for generating the ability to speak, had been missed, the twins' speech started to develop, in spite of the fact that they had scarcely spoken at all until the age of 7. The development was quickest after their ninth year when they came to their foster-family, which provided them with all the prerequisites both for the development of speech and for the whole personality. At

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school, and in a collective of children, the boys were agile, gay and popular; there were no signs of eccentricity or troubles in the social sphere. Until the fourth class of their school attendance their results were very good—they used to have a grade two in the Czech language only (mother tongue). They were the best pupils of the class in arithmetic (grade 1), which arose, first, by a quick compensation of the retardation in the sphere of intellectual functions, and second, by their being 2–3 yr older than their fellow pupils.

Gradually, they began to feel older in comparison with their schoolmates and began to be aware of their late start at school, both these being due to the acceleration of their growth and a rather delayed commencement of pre-puberty. Both the teachers and the foster-mother supported their natural ambition to master, during the fourth class, the subject matter of the fifth class. They succeeded in their effort and after the holidays passed the examinations of the fifth class; then they were moved up from the fourth, direct to the sixth class. Thus, they found themselves among children of more approximate age and their self-confidence was reinforced. Their results fell to the average, but the situation has been gradually improving since then. Both of them like attending school and, naturally, some subjects are favourite and others less attractive for them. They love reading, ride bicycles, can swim and ski, they play the piano well and they have both creative and technical talent. It is interesting that musical ability started to develop only at about the age of 10, but it is now at a good level. In the present school year (1974/1975) the boys attend the seventh class; their schoolmates are, on the average, one and a half years younger. As their adolescence began about a year late in comparison with the average of our population, the whole status of their development and interests now corresponds approximately with the standard of their present schoolmates. After finishing basic education (9 classes) they would like to study at a secondary vocational school, for which they show sufficient aptitudes.

The development of the twins' intellectual level has been observed continually by means of several methods; to compare previous scores with more recent findings the author presents here the boys' I.Q. obtained by means of the WISC:

It will be recalled that shortly after their discovery (age 7), I.Q.'s were probably in the forties, rapidly rising by 30 to 40 points. After this spurt, the next most rapid development occurred between the ninth and tenth years, namely the first year of their stay in the foster-family and the first year of their school attendance. According to the past trend, it is possible that their intelligence scores may continue to show a slight increase. In the non-verbal scale of the WISC and in Raven's Matrices

TABLE 1. WECHSLER INTELLIGENCE TEST SCORES (WISC)

Age (yr)	Twin P. I.Q.	Twin J. I.Q.
8	80	72
9	82	73
10	91	89
11	95	93
12	95	104
13	98	100
14	100	101

test, the achieved scores are a little higher than in the verbal, which may be explained by the fact that the verbal score is to a certain extent dependent on education, which is still slightly retarded (1 yr) according to their age. In spite of initial differences in their development, their general standard has now come to be equal; however, some features of their character have continued to differ. J. is a little slower in comparison with his brother, but he is in general of calmer disposition. P. perceives more quickly, he reacts more promptly, but his attention is rather labile, he is a little preoccupied and shows symptoms of autonomic lability.

In the development and forming of the personalities of the boys no psychopathological symptoms or eccentricities appear at present. It is possible to say that there are no consequences of the deprivation remaining which would cause retardation or damage to their development. It does not mean, however, that five years of hardship and ill-treatment by their cruel stepmother have not left any traces at all. The dread of darkness, which persisted for a long time, has already faded, but under oppressive or unusual conditions the boys sometimes show the feeling of fear and their reaction is neurotic. For example, once they happened to come to a cellar similar to the one in which they had often been imprisoned, which frightened and upset them and again called up the recollections of past suffering. In the cheerful environment of their new family, and with the help of their foster-mother, who is always ready to understand, the boys will calm down quite easily and revert to their normal mood.

The twins hate recalling the conditions of their deprivation, and are even unlikely to speak about it with each other. However, by occasional remarks and the reactions mentioned above, it is evident that some recollections have remained and will probably be retained for ever. The boys' foster-mother mentions that they will tell her something about their cheerless childhood now and then, but always each of them separately in an intimate talk. Comparing their previous and present recollections, it is apparent that there is no tendency to distort or exaggerate their experiences; their evidence conforms with the data stated in the judicial trial of their stepmother. The boys' recollections of the past are no longer associated with fear of possible recurrence of such living conditions and of losing their new family.

The awareness of the relationship with the family is profound and makes the boys feel safe and assured. Natural emotional bonds with all members of the family have arisen; apparently the relationship with their foster-mother, who is in a dominant position in the family, is emotionally deepest. Her sister is an aunt for them. As mentioned in the 1972 paper, the latter had adopted a girl—now 16 yr old and besides her there is another 10 yr-old girl (staying with the family during the last four years), whose brief history will follow. Thus, there are two foster-mothers and their four children, who have very nice brother and sister relations with each other, although they of course know they are not consanguineous relatives. There is a happy atmosphere in the whole family, full of mutual understanding. Undoubtedly, it is possible to object to such a family without a father, whom the boys would need just at present in the period of their puberty. The boys' foster-mother is aware of this and is trying to compensate for the lack of a man in the process of bringing up the boys by their frequent meeting with her brother and other relatives and friends, who have close relations with the boys.

The fact that has intensified their awareness of firm relationships in this family, and has helped to establish the feeling of safety and assurance, was the agreed change of surname to that of their foster-mother. Even before the change was completed, the boys had been using this surname; they have never uttered their original surname as it has evidently raised negative emotions in them.

As the most important factor in the conditions of deprivation of the twins from 18 months until 7 yr of age was almost total social isolation and hostile relations with the members of that family, especially with their stepmothei, the question arises—how it has been reflected in their social relations and behaviour?

In the 1972 report, relations of the twins with each other, with other children and also with adults were described. The situation has been developing as follows: immediately after they had been removed from the family and placed in the children's home, a strong emotional bond with each other was evident. Apparently, it had developed because it had been the only positive emotion that could have been built up and, moreover, it had helped them to bear the difficult living conditions. The outer demonstration of their relations, however, corresponded with a much lower age: they used to make themselves understood like toddlers, using mostly mimicry and gestures. Their original shyness with people and reactions of terror had disappeared rather quickly and the children reacted positively both to adults and children in a way that is more characteristic of younger children. Mainly, they showed a lesser differentiation of emotional relations and a prevailing interest in adults.

The children's gradual socialization was facilitated by the fact that they had lived for a longer period of time among children approximately three years younger, which corresponded with their developmental deficit. Starting to attend a school for mentally retarded children at the age of 9, they had access, for the first time, to a larger well organised group of children, in which they joined successfully; undoubtedly, the individual attention of their teacher, who had been informed of their history, helped a lot. There were no striking features in their social contacts, they did not show any symptoms of timidity, shyness or any other abnormality and they never behaved aggressively either at the school for mentally retarded children or at the normal school later on. The boys have always had close relations with each other—an emotional bond much firmer than is usual with brothers of their age. But, of course, common teasing or petty conflicts are present, as is usual with children in normal families.

Making the boys acquainted with their suffering during the early and preschool age appears to be a relatively difficult educational and psychotherapeutic problem. They can remember that period of time only in fragments without being able to comprehend the essentials of the whole event, its circumstances and causes. We consider it advisable to make them acquainted with the main facts concerning their parentage, family, the trial, and further events until their coming to this family, from the point of view of realization of the continuity of their personalities, self-evaluation and also as a precaution against possible trauma caused by incidental information or experience in later life. It is necessary to respect the longstanding aversion to reverting to the past, but at the same time their pubescent inquisitiveness and their efforts to know and to evaluate themselves should be employed. The foster-mother is aware of the gravity of this task and she appears to manage it well. The author wants to focus her attention on those problems, too, in her talks with the twins within the framework of their psychological observation, naturally, in close cooperation with their foster-mother.

Appreciating the children's general development as highly successful—in contradiction with the original prediction of doctors—it is also necessary to evaluate the therapeutic factors that have contributed to this. As already stated in the 1972 report, the children had been treated at an orthopaedic and paediatric clinic after their withdrawal from the family and after their rickets had been overcome. At the same time they had been examined in psychiatric and ophthalmological clinics and in a phoniatric ward. Their somatic condition having improved, they were placed in a children's home. Also there, exceptional individual care was bestowed upon them and their future was discussed and planned carefully. The most important factor for solving that problem was a good prediction consequent to psychological examinations. The present foster-family was selected from several families interested. Having been placed in this family, the children started to attend speech training and they were also practising their pronunciation intensively at home. Consequently they managed to inhibit their nasal speech and in general to modify their poor articulation. The children have also been carefully looked after by a district paediatrician, who knows everything about the family and the children themselves. Another important curative factor is the attitude of their teachers, which is individual and full of sympathy, although they expect the boys to meet reasonable scholastic demands without any preference or special tolerance.

Continuing care, carried out during the whole period by the same psychologist (the author), has proved to be fortunate. Besides the experimental direction, she also acts as an adviser and passes psychological reports to the school and to other institutions. In the author's opinion, the main advantage of such procedure lies in her detailed knowledge of the whole history, including court reports. Moreover, the twins trust her, which has enabled her to observe the dynamism of their development over 7 yr.

Even if all the above mentioned curative factors are by no means significant, it is necessary to emphasize that the most effective and integrative curative factor is their foster-mother and the whole environment of their family. Although the lady is employed, she devotes all her leisure time to the children with a lot of self-sacrifice; her solicitude for them is the content and purpose of her life, without spoiling the children or adopting uncritical attitudes.

The specialists, who had not believed in any possibility of remedying the severe deprivation damage in the twins, later referred to their quick development as an exception to the rule which states that severe deprivational damage at an early age is irremediable. According to the author's experience, however, there are a number of similar cases, but they are not usually correctly diagnosed, professionally observed and described.

As an example of the importance of a correct diagnosis and the difficulty of remedying severe deprivation, we want to outline a brief history of a girl L. H., born in 1965, living now in the same family as the twins. This girl was withdrawn legally from her own family at the age of four as a consequence of almost total social isolation and cruel treatment by her psychopathic mother. The child had been hated by her mother; tormented by hunger, she had been constantly kept alone in an unfurnished room, had slept on a straw mattress and had not acquired the basic habits of body hygiene. All of her mother's seven elder children had earlier been withdrawn from her legally. This girl was placed in a children's home, where she behaved anxiously, agitatedly, even aggressively; her language ability was almost totally undeveloped and she was still incontinent. The schoolmasters in the home considered her ineducable and it was decided that she should be placed in a mental home. For diagnostic and therapeutic reasons the child was admitted to a psychiatric hospital and dismissed after a month with the diagnosis of severe mental handicap.

The family in which the twins live happened to hear about this girl. Encouraged by the good development of the twin boys, they decided to adopt the girl into the family as a foster-daughter in spite of the fact that the prediction of her development was rather pessimistic, being based on a supposition that she had been primarily an intellectually defective child. Even though the child was difficult to care for in the family during the first weeks, due to her agitation and anxiety, soon both the ladies understood that she had been damaged by cruelty and isolation and that she had a good intellectual capacity. During our first examination of the child soon after her arrival in the family we were able to eliminate mental subnormality even if her retardation was considerable and deprivation symptoms conspicuous. The child started learning to speak rather quickly, she was bright and she began to attend a kindergarten.

On the whole, however, this child has always been an incomparably greater educational problem than the twins. She attends a school for normal children, she can read and write well and she has an outstanding talent for music, but her attention is very labile, she is not able to take adequate pains while learning and she shows some shortcomings in the functions of her memory, which might be due to her having suffered meningitis, caused probably by frequent, uncured otitis media, from which she still suffers. She has continued to have some problems in the social sphere, though, thanks to kind-hearted and consistent up-bringing, there has been some improvement and rectification even here, which could not have been achieved in a children's home. The girl joins in with other children or the collective of pupils in her class with great difficulty; sometimes she is aggressive and intolerant with her contemporaries, while she is gentle and kind with younger children.

It is interesting to compare the girl with the twins. The deprivational history of the three children is rather similar; they live in the same family now and are given the same attention. Their different development in the social sphere can be explained by distinct congenital dispositions but mainly by the fact that the twins had mutually reduced their isolation and terrible living conditions. The girl's mother is a severely psychopathic person with disorders in character and the social sphere. There are no valid data about her father. On the other hand, the twins' mother was quite normal in intelligence and personality structure. The father of the twins was already characterized in the 1972 report as passive and of below-average intellect. According to preserved photographs and to reliable reports, the twins seem to possess their mother's features, both in the somatic and psychological sphere. But their better development in the social sphere should be explained in the first place by the fact that they could build up emotional relations with each other, they could stimulate each other to some extent and thus they did not experience the tormenting feeling of loneliness as intensely and destructively as would a child totally isolated.

We have recorded more cases similar to the twins and the above-mentioned girl, but their detailed history has not yet been obtained and they have been observed only for a shorter period. The author could often confirm, in her work as a clinical psychologist, that children who suffered severe and prolonged deprivation, coming either from inadequate families, often chastised and socially isolated, or living for a long time in a children's home environment, are misdiagnosed as mentally subnormal by paediatricians, child psychiatrists and psychologists. The clinical picture of severe deprivation and mental subnormality is similar in certain symptoms, which can lead to a confusion of the two diagnoses when the subjects are only routinely examined, when the test methods are mechanically used or are misinterpreted and when the history is not known in detail. Both the cases are typical of general retardation of development and speech, social immaturity and a lowered ability to learn, Especially, the development of children up to the third year of age may be so profoundly affected as a consequence of all the external and internal conditions of a children's home environment lacking stimulation, that it is rather difficult to differentiate such cases from mental subnormality.

As these children are usually socially forlorn, i.e. their parents cannot or do not want to look after them, it is necessary to solve the problems of their future and therefore a correct diagnosis is of immense value. The author thinks that, while performing a difficult, consequential differentially-diagnostic consideration, the psychological findings should always be respected. Only psychological examination can reveal subtle differences between severely deprived and mentally subnormal children. However, cursory, non-residential examination will not do; it is absolutely necessary to carry out a detailed repeated examination by means of both psychometric and non-test methods, aimed at the structure and dynamics of their developmental deficit. Such an examination enables a skilled psychologist to differentiate deprivation from subnormality and to determine the prognosis for its development. Here the psychological diagnosis is not only a theoretical problem, but above all a basis for educational, juridical and therapeutic actions.

In cases of severe deprivation originating at an early age, the therapeutic prognosis has usually been considered poor. But the above-mentioned cases of deprived children, together with others that are still being observed, prove that even gross damage, previously considered to be irreversible, can be remedied. Our experience with the development of speech, too, contradicts the traditional view concerning the critical period for the development of speech. In the twins, as well as in other cases, successful development of speech was observed three to six years after their passing to a stimulating environment, sometimes even later. Thus, the prediction for the retarded development of speech in deprived children seems to be more optimistic if the defect is not organically or genetically conditioned, and when the child is given sufficient professional care and above all, placed in a kind-hearted family environment.

The view that the effects of severe deprivation were irreparable arose from the fact that for severely deprived children there is difficulty in finding suitable foster care. According to our experience, the environment of a family, stimulating and full of understanding, giving them a feeling of safety and firm relationships, is the only effective therapy, although very exacting and time-consuming. This conclusion, together with the fact that the family is considered to be the most important educational factor, led to several arrangements for the care of children living outside their own families in our country, which are designed to prevent deprivation or remedy existing deprivation. There has been a general effort to assimilate a children's home environment to a family environment, e.g. to integrate a number of children of different ages into so-called "family groups" with unchanging tutors.

Besides the standard children's homes, there have arisen new forms of substitute family care—so-called "children's villages" in which foster-mothers with 8–10 children live in separate houses; then, there are so-called "big families", where a married couple looks after a similar number of children. Those "big families" are not concentrated in "villages", but they live in normal houses, both in towns and in the country. "The father" is employed somewhere like the father of a normal family and "the mother" looks after the children and is paid by the state on the same basis as "mothers" in "children's villages". There are also cases of paid foster-parentage in natural families. Both such families and the people interested in the work either in "children's villages" or in "big families" are carefully selected, including by psychological examination; all the forms of substitute family care are paid and methodically guided by the state authorities and advisory boards, in which psychologists also work. A special advisory service has also been established with psychologists and paediatricians, and if necessary, other experts can be summoned, for example, child psychiatrists.

Several years' experience with these forms of care indicate the great therapeutic prospects offered by a stimulating family environment. To observe and evaluate them is a task for long-term studies which might be a valuable contribution to the diagnosis and remediation of deprivation.

SUMMARY

A previous (1972) report on the good development of twins after severe and prolonged deprivation is followed up, and progress over three further years is described. Intelligence is now average. No psychopathological features or eccentricities, either in behaviour or social relations, can be identified. The boys are sociable, happy and have firm emotional bonds with their foster-family; they attend a school for normal children, with good results. A case of a 10-yr-old girl with a similar background now living in the same foster-family is also described.

The psychological diagnosis of severe deprivation and its remediation are also discussed.

Acknowledgement—The author would like to express her gratitude to Professor A. D. B. Clarke for his interest in her work.

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AN OBSERVATION SCHEME FOR RECORDING CHILDREN'S IMAGINATIVE DOLL PLAY

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IMAGINATIVE play has frequently been used as an indicator of developmental level (e.g. Gesell, 1940; Piaget, 1969) although, more recently, attention has been focused on its relationship to language and the possibility that it might be used to facilitate language acquisition (Myklebust, 1956; Reynell, 1973; Jeffree and McConkey, 1974).

However attempts to explore the relationship between imaginative play and other variables are beset with problems of methodology. The checklists, diary records or rating scales used in previous studies (Lowe, 1974; Markey, 1935; Singer, 1973) are open to various criticisms; most seriously, difficulty of replication.

The aim of the present study was therefore, to construct a replicable method of recording imaginative play and to evaluate its reliability and validity. Doll play was chosen as it is the easiest sort of imaginative play to observe and the one used most frequently in past studies. However the scheme is sufficiently flexible to incorporate other forms of imaginative play.

The observation scheme concentrates on the actions involved in play. However in order to record the toys the child interacts with, a five item statement, analogous to a sentence is used in recording. This specifies an Actor, Action, Instrument of Action, Context and Duration of action. The *Actor* is normally the child, although on occasions a doll can be classed as the agent of the action, e.g. child makes doll 'hold' cup while feeding.

The *Action* is classed as either 'imaginative' (if pretence is involved) or 'behavioural'. Imaginative actions are further rated as elaborated or unelaborated depending on how accurately the child mimics the action. The verbs used in recording are listed and defined in the Appendix.

The *Instrument* records the object used instrumentally in the action while other objects associated with the action are recorded as *Context*. The *Duration* of the event is recorded in seconds. An example of a record is given below:

Actor	*Action*	*Instrument*	*Context*	*Duration* (sec)
Child	Feeds	Spoon	Doll	5

(A fuller account of the scheme is available from the authors).

In addition to providing a record of the child's play, the scheme was also designed to produce measures of the frequency, duration and diversity of imaginative play. In order to assess their validity, the study also investigated the relationship between these measures and three independent variables which previous studies have shown to affect imaginative play, i.e. Developmental Age (Lowe, 1974;

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Markey, 1935), Play Materials (Phillips, 1945; Pulaski, 1974) and Modelled Play (Durrell and Weisberg, 1973; Freyberg, 1974). Generally, these studies have found imaginative play to increase with age (or developmental age in the case of mentally handicapped children), with unstructured rather than 'realistic' play materials and with exposure to an adult's model of play. If the measures derived from the observation scheme showed the predicted relationship with the three independent variables, it would be suggestive of their validity.

METHOD

Subjects

Two groups of children were included in order to assess the scheme with two different populations. The first group consisted of 10 normal children (5 boys and 5 girls) at approx. 6 monthly intervals between 18 and 41 months (these ages being inclusive) with the median age: 30·5 months. The children were attending the University nursery and their parents were either University teachers or students. The second group consisted of 9 children (6 boys, 3 girls) attending the nursery class of a local ESNS school in a predominantly working class part of the city and all were living at home with their parents. Six of the children were classified as Down's Syndrome; the aetiology of the remainder was unspecified. The children's ages ranged from 57 to 103 months with a median age of 72 months.

Although the chronological ages (CA) of the groups were not equivalent and they were not comparable in socio-economic terms, the groups were matched on Developmental Age, as measured by the Griffiths Mental Developmental Scale (1970). The normal group had a median score of 33 months (range 19–44 months) and the ESNS group, a median score of 35 months (range 21–45 months). Furthermore, the groups were matched on each of the six individual scales making up the test.

Realistic toys

A rag doll (34 cm tall and dressed in jumper, pants, shoes and scarf, all removable), chair, bed, pillow (could also be used as a mattress), sheet, cup, spoon and comb (see Fig. 1a).

Junk material

A cloth doll, made from a piece of white material, 25 × 35 cm, tied around a ball of cloth to form a head on which was painted black lines representing eyes, mouth and nose. As well as the doll, there was a large flat box, a small box, a stick of wood, a flat piece of wood, a tin, a plastic cone, a yellow duster and a tea towel (see Fig. 1b). In addition to having two play sessions with each set of material, a third session was included using the realistic doll and the junk items (apart from the cloth doll).

PROCEDURE

Each child was seen individually within a Wendy House situation, formed by screening off a corner of their classroom. The children's play was observed during three separate sessions with at least 24 hr between each session. Session 1 was with the realistic toys; session 2 with the realistic doll and junk material (apart from the cloth doll) and session 3 with the junk material. Each session lasted 15 min and throughout all the sessions one experimenter (*E*) was present with the children.

During the first 5 min of the session, *E* only encouraged the child to play with the material; this was termed the Pre-modelling period. During the second 5-min period, *E* modelled doll play using another doll similar to the one provided for the child. The same five actions were modelled with each set of material and with all the children. They were—cradling and rocking the doll, doll walking, doll waving, the doll being put to bed and covered by a 'sheet' and the doll holding a 'cup' and drinking from it. The actions were not followed in any particular order and *E* was free to accompany the modelling with appropriate language and to repeat the actions. However no direct encouragement was given to the child to copy *E*, nor was the modelling appreciably affected by the child's

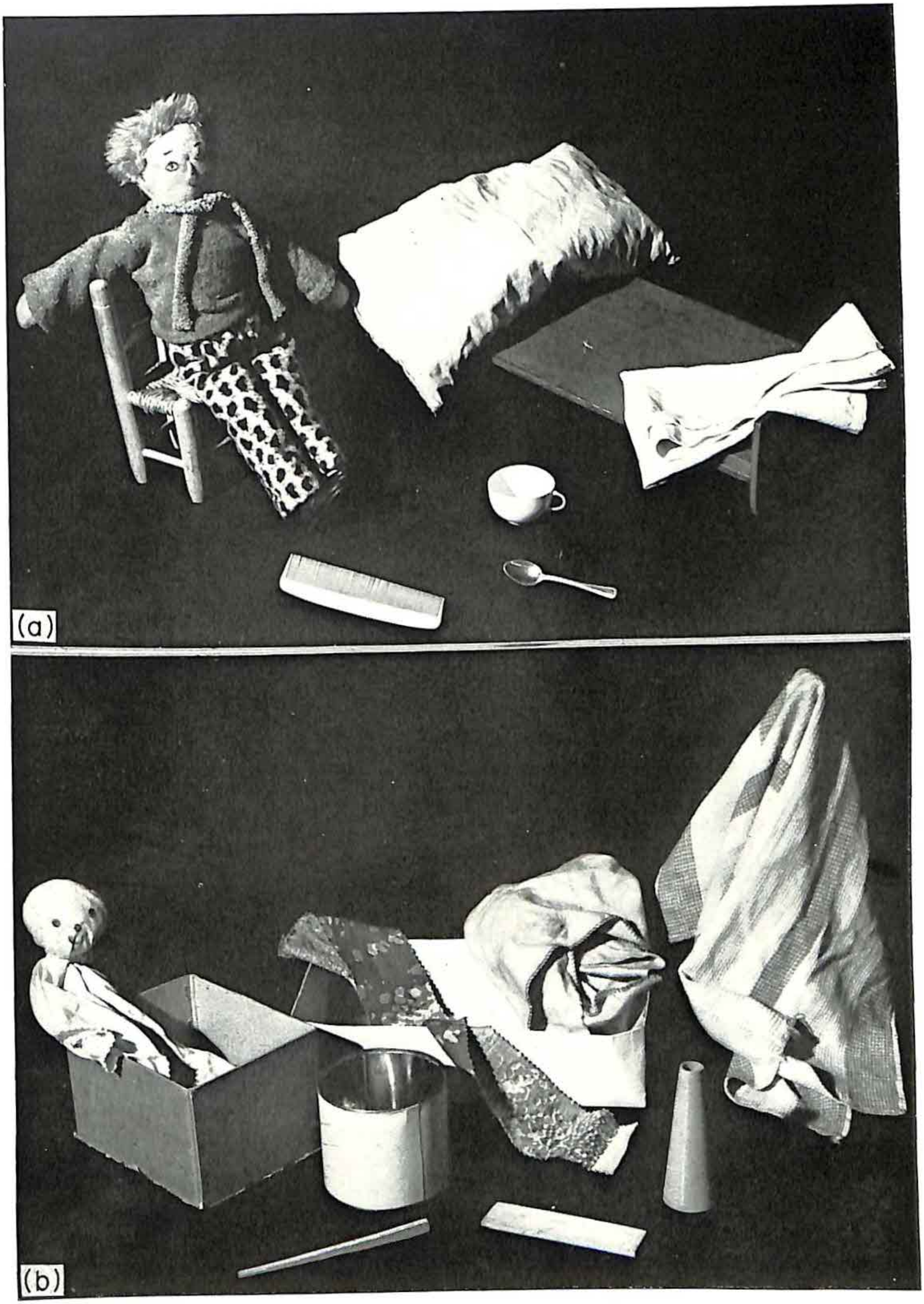

Fig. 1 (a). The realistic toys.

Fig. 1 (b). The junk material.

reactions. The Modelling period was followed by another 5-min period of free play (Post-Modelling period) during which *E* reverted to her earlier role. Thus, to summarise, each child was observed playing with three sets of material, under three modelling conditions. The length of each modelling period was equivalent (i.e. 15 min) when summed over sessions. In all, each child was observed for 45 min.

In order to develop the scheme without loss of data, videotape recordings were made of all play sessions and the observation scheme used to provide a transcription. Two observers worked together on this, discussing each statement before coming to an agreed record.

A check was made on *inter-rater* reliability once the observers had transcribed at least 5 hr of play working together and were thus thoroughly familiar with the scheme. The observers now worked separately and transcribed 12 sessions of play taken equally from both groups of children and including a variety of children and play materials.

RESULTS

Inter-rater reliability

The percentage agreement between the two observers was calculated separately for each group of children. This was done for each item of information within the statement.

TABLE 1. PERCENTAGE AGREEMENT BETWEEN RATERS ON EACH ITEM WITHIN A STATEMENT CALCULATED FOR EACH GROUP OF CHILDREN

	% agreement between raters	Normal group (%)	ESNS group (%)
1.	Overall	89	87
2.	Actor recorded	100	100
3a	Type of action (behavioural vs imaginative)	90	93
3b	Rating of imaginative action (elaborated vs unelaborated)	84	74
3c	Verb recorded	79	81
4.	Instrument recorded	100	100
5.	Context recorded	96	97
	Total no. of units recorded	401	351
	Total length of play sessions	90 min	90 min

As Table 1 shows, the level of agreement was high throughout and very similar with the two groups of children. Agreement was particularly high on the type of verb recorded although somewhat lower as to the actual verb recorded and on the rating of the imaginative verbs.

However, this high level of reliability between observers was offset somewhat by the fact that there was not always good agreement between observers on *what* to record, i.e. one observer had recorded a unit that the other had omitted. The ratio of 'unique' statements to 'agreed' statements was 1 in 10 with the ESNS group and 1 in 5 with the normal group. Although somewhat high, an analysis showed that the duration of unique statements was often less than 5 seconds. This finding may well have arisen because of transcribing from videotape. Furthermore, summary results for children's play (see below) calculated on each observer's record showed very little difference. The scheme therefore does provide an acceptable degree of *inter-rater* reliability.

Validity

Four measures were used to quantify the frequency, duration and diversity of the children's imaginative play. They were

1. The percentage of actions that were rated imaginative (% imag.).
2. The percentage of actions that were rated elaborated imaginative (% elab.).
3. The percentage of playing time rated as imaginative play (% time).
4. The number of different imaginative verbs recorded (No. diff.).

Where possible, percentage scores were used as they indicate the proportion of imaginative play to non-imaginative play that occurred within a session. From past studies, it was predicted that these measures would increase with Developmental Age, certain play materials and Modelled Play (see Introduction).

1. *Developmental age.* Rank-order correlations were calculated between Developmental Age (as measured by the Griffith Test) and the four measures, calculated over the three play sessions (45 min in all). This was done for both groups separately as well as for the combined group and the results are given in Table 2.

TABLE 2. RANK-ORDER CORRELATIONS BETWEEN DEVELOPMENTAL AGE (AS MEASURED BY THE GRIFFITH'S TEST 1) AND MEASURES OF IMAGINATIVE PLAY, FOR BOTH GROUPS OF CHILDREN AND THE COMBINED GROUP

Measures	Normal children† (N=10)	ESNS children (N=9)	All children (N=19)
% imaginative actions	0·34	0·59	0·44*
% elaborated imaginative actions	0·70*	0·66*	0·71*
% time imaginative actions	0·68*	0·37	0·52*
No. different imaginative actions	0·60*	0·62*	0·62*

$^*P < 0{\cdot}05$.

†Correlation between CA and Developmental Age was 0·98.

Although all four variables were significantly correlated with Developmental Age for the combined group, only two variables, % elaborated imaginative verbs and the number of different imaginative verbs, showed consistent correlations in each group.

The results of the normal children were then re-examined as their group had been specifically constructed to reflect Developmental Age, in that it included two children at six monthly age intervals ranging from 18–42 months inclusively. All four variables showed a steady increase with age up to, and including 36 months but with the two eldest children (42 months) there was a marked decrease in their scores. When the correlations were recalculated omitting these children, they were significant with all four variables ($p < 0{\cdot}05$; ranges 0·75–0·90). Thus the measures of imaginative play did generally increase with Developmental Age.

2. *Play materials.* The four measures were now calculated for each set of play materials. The median scores of the two groups on each measure are shown in Fig. 2. Wilcoxon Matched-Pairs Signed-Ranks Tests (Siegel, 1956) were used to compare groups' scores with the different play materials. These showed that both groups had significantly higher % imaginative verbs and % time spent in imaginative play with the realistic material compared to the junk material ($p < 0{\cdot}05$); although on % elaborated imaginative verbs the differences were not significant. Also the

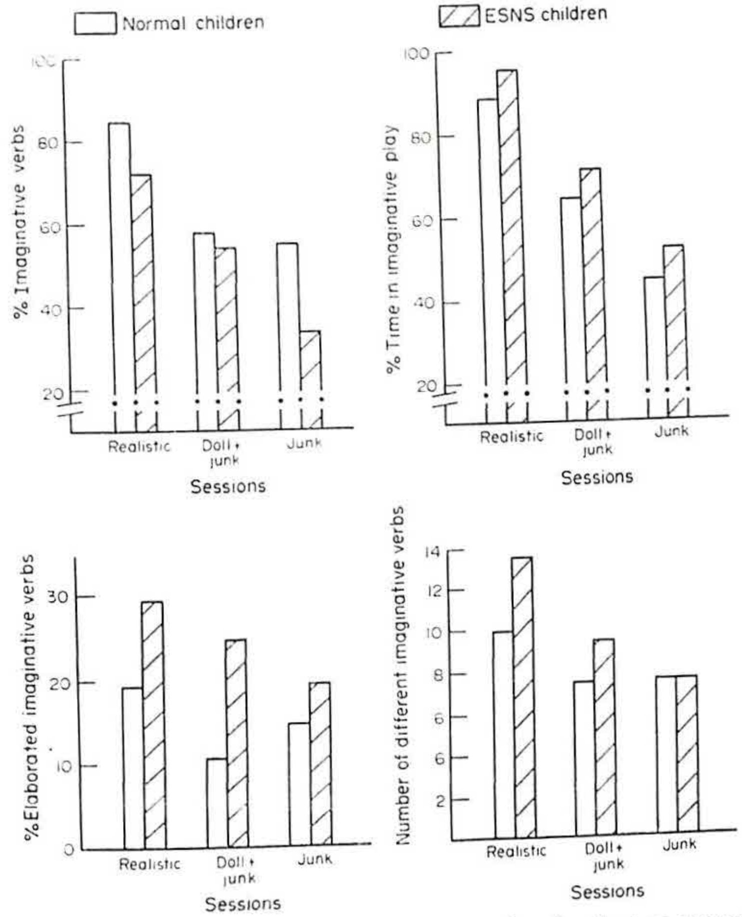

FIG. 2. Median scores on the four measures of imaginative play for the two groups of children with the different play materials.

normal children showed no significant differences in the number of different imaginative verbs with the various play materials, although the ESNS children did have significantly fewer imaginative verbs with the junk material compared to the realistic material.

In general therefore, the play material affected only the frequency and duration of imaginative play; higher scores were obtained with the realistic material. Although this result may appear contrary to previous findings, it should be noted that the previous research was conducted with older children, whose imaginative play was presumably well developed.

3. *Modelled play.* The four measures were calculated for each of the three modelling periods irrespective of the play material provided. Figure 3 gives the median scores of both groups on each of the measures.

Wilcoxon tests showed that for both groups there was a significant or nearly significant increase in % imaginative verbs ($p < 0{\cdot}02$) and % time spent in imaginative play ($p < 0{\cdot}06$) during the Modelling period compared to the Pre-Modelling period. However the increase was not significant with % elaborated imaginative verbs or the number of different imaginative verbs in either group.

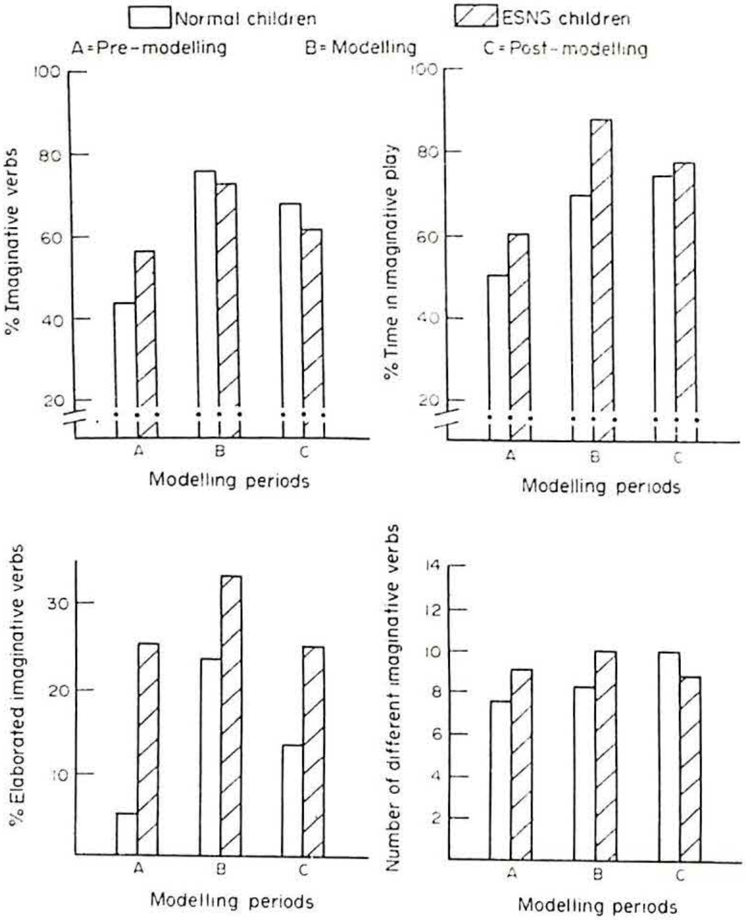

FIG. 3. Median scores on the four measures of imaginative play for the two groups of children during the three modelling periods.

When the Post-Modelling and Pre-Modelling periods were compared, the two groups of children showed a different pattern of results. With the ESNS children, there were no significant differences between these periods on any of the four measures whereas the normal children had significantly higher % imaginative verbs ($p < 0{\cdot}02$); % time spent in imaginative play ($p < 0{\cdot}01$) and a greater number of different imaginative verbs ($p < 0{\cdot}02$) during the Post-Modelling compared to the Pre-Modelling period.

Thus modelled doll play did tend to increase the frequency and duration of imaginative play with both groups, although with the ESNS its effects were specific to the Modelling period while with the normal children it also affected their Post-Modelling performance.

Comparisons between Normal and ESNS children

Mann–Whitney *U* Tests were used to compare the performance of the two groups on the four measures of imaginative play. However on none of the measures, whether calculated over the play sessions, within play sessions or across modelling periods were there significant differences between the groups. This is not surprising as the groups were equivalent in Developmental Age, and suggests that with ESNS subjects, imaginative play is more closely related to this than to Chronological Age.

Sex differences

Mann–Whitney *U* Tests showed no sex differences on any of the four measures, either when calculated over the three play sessions or within play sessions or across modelling periods. But this finding may be a feature of the sample of children used, e.g. Lowe (1974) reports very few and generally inconsistent sex differences with children up to 36 months whereas sex differences have been found in the imaginative play of older children (Singer, 1973).

Inter-relationships between play variables

Table 3 shows the rank-order correlations between the four measures when calculated over the three play sessions. Not surprisingly, all four measures were significantly inter-correlated ($p < 0\cdot05$) but as we have already noted, they showed a different pattern of relationships with the three independent variables. The % elaborated imaginative actions and the number of different imaginative actions showed a strong correlation with Developmental Age but were largely unaffected by Play Materials or Modelled Doll Play, while the converse held with % imaginative actions and % time spent in imaginative play.

TABLE 3. RANK-ORDER CORRELATIONS BETWEEN THE FOUR MEASURES OF IMAGINATIVE PLAY CALCULATED OVER THE THREE PLAY SESSIONS FOR BOTH GROUPS OF SUBJECTS

	% imag.	% elab.	% time	No. diff.	
% imag.		0·81*	0·89*	0·80*	Normal children (N=10)
% elab.	0·89*		0·89*	0·75*	
% time	0·73*	0·83*		0·87*	
No. diff.	0·63*	0·82*	0·64*		
		ESNS children (N=9)			

*$p < 0\cdot05$.

DISCUSSION

The observation scheme does provide a replicable means of recording children's doll play. The measures of play derived from the scheme were sensitive to inter-subject as well as intra-subject differences in play brought about by the three independent variables. Also the measures did generally show the predicted relationships with the independent variables, which is suggestive of their validity as measures of imaginative play.

But devising a methodology for studying imaginative play is only a starting-point for further research. Particularly important is research into the development of imaginative play. The results of this study suggest firstly that certain toys are more likely to elicit imaginative play with young children than others. It is not clear why this should be so and the finding requires further investigation.

Secondly, it would appear that it is *not* the frequency and duration of imaginative play which increases with age but rather its diversity and 'elaborateness'. This is further supported by the finding that within both groups, the children consistently showed the same pattern of results on measures of diversity and elaboration of play, irrespective of play materials or modelling, which was not the case with measures of frequency and duration. Elaborated play may result from an increase in the child's capacity for deferred, and indeed more precise imitation (Piaget, 1969).

Related to this is the effect of modelled play on children's imaginative play. Here differences were found between the normal and ESNS children's performance and in particular in the frequency and duration of imaginative play during the Post-Modelling period. The variable of Modelling is one that is important in any attempts to facilitate children's imaginative play. The finding that it increases the frequency and diversity of imaginative play with normal children is encouraging but this was not the case with ESNS children. Here any increases in imaginative play were specific to the Modelling period and did not carry over into the Post-Modelling period. It could be that these children would benefit from a more prolonged period of modelling than the one used here, accompanied by gradual fading of the modelling rather than the abrupt change used here.

SUMMARY

A methodology for recording and quantifying children's imaginative doll play was evaluated with a group of 10 normal children, aged 18–42 months and a group of 9 ESNS children, aged 57–103 months. With both groups there was high inter-rater reliability and the measures used to quantify the play showed an expected positive correlation with Developmental Age. Furthermore the measures were sensitive to changes in the play brought about by different play materials and experimenter modelled doll play.

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APPENDIX

(a) *Imaginative verbs*

Combs	The act of combing the doll's hair.
Washes	The act of washing (and/or drying) the doll.
Feeds	The act of giving the doll 'food' or 'drink'.
Sits	Making the doll sit in an appropriate manner.
Pats	A show of affection for the doll; kissing it, stroking it, etc.
Smacks	Hitting the doll as if punishing it.
Waves	Making the doll move its arm in a waving action.
Walks	Making the doll walk (doll in the upright position with its feet touching or nearly touching the ground).
Dresses	The placing on or removal of an item of clothing from the doll.
Spoons	Refers to the stirring action associated with feeding or to the lifting of a substance with a 'spoon'.
Folds	Refers to the folding of the cloth stimuli when done in relation to another object, e.g. folding back the cloth on the bed so that the doll's head shows.
Places in	An object is placed within another object, e.g. doll placed in the 'bed'.
Places on	One object is placed on top of another, e.g. a 'sheet' to cover the doll when in 'bed'.
Places down	An object is placed on the ground.
Places under	An object is placed under another object, e.g. the doll placed under the 'sheets' on the bed.
Holds	Child has an object within his possession and holds it as if it were the 'real object'.
Carries	Used instead of holds if the child moves around the play situation while holding the object.
Adjusts	Used when the child varies, the position of an object without any major change occurring in the position of that object relative to other objects but still maintaining the pretend situation.

(b) *Behavioural verbs*

Grasps	Child retains the object within his possession; holding it in his hand or by his arm.
Travel	Used if the child, while grasping an object, moves around the play situation.
Puts down	Object is placed on the ground.
Puts in	Object is placed on top of another object.
Moves	Includes the lifting and putting down of an object and is used to indicate general movements of objects not concerned by any other verb.
Hits	Child strikes one object against another. Also includes hitting objects against the wall or floor, etc.
Shakes	Child, while grasping the object, shakes it making gross arm movements.
Rubs	Child moves one object against another. Also includes rubbing an object on the floor or wall, etc.

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JUDGEMENTS OF AUDITORY POSITION BY SPASTIC AND NON-HANDICAPPED CHILDREN: THE APPLICATION OF CHOICE THEORY MEASURES*

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FREQUENTLY psychologists have attempted to quantify the effects brain damage in children and adults using techniques from psychophysics and general experimental psychology (e.g. Semmes *et al.*, 1954). Such work has in the main emphasized deficits associated with brain damage. Abercombie (1964), for example, has argued that there is a wide variety of spatial deficits contingent upon cerebral palsy and at times, the implications of statements about what brain-damaged persons cannot do are quite unclear. For example, Cruickshank *et al.* (1965) have suggested that cerebral palsied children may not distinguish figure from ground since they make more mistakes than the non-handicapped in hidden-figure tests. Now distinguishing figure from ground is part of what we mean by spatial perception and it is hard to believe that cerebral palsied children cannot make spatial judgements, cannot, for example, distinguish the experimenter from the background of the room in which he is seen. In short, failure to detect the hidden figure may not tell us very much about the child's ordinary perception. It may only be the case that the brain-damaged child is less willing to report the hidden figure particularly if the child takes the report to be an aberrant one (a similar "response bias" account of the performance of brain damaged adults has recently been suggested by Over, 1973).

Further, Jones and Alexander (1974) have argued that dependent measures in many studies of brain damage are inadequate. Following signal detection theory (e.g. Green and Swets, 1966) they argued that standard measures confound effects due to sensitivity with bias—the possibility that independent of the stimulus not all responses are equally likely. Birch and Belmont (1964) found that cerebral palsied children made fewer correct responses compared to non-handicapped in auditory–visual matching. However, Jones and Alexander (1974) showed that spastic and non-handicapped children matching spatio-temporal patterns between vision and hearing did not differ on average in "hit-rate", the proportion of correct" "same" responses, but that the non-handicapped had a lower "false-alarm" rated, the proportion of incorrect "same" responses. In other words, the spastic group

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*Thanks to Geoff Swan for providing facilities to work with cerebral palsied children.

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made fewer correct responses overall but conceivably because of an increased bias to report "same" rather than any lowered sensitivity.

In the present study a group of spastic children was compared to a non-handicapped reference group in judgements of spatial position (right or left) of a single tone and in judgements of the position of the second of two tones. Dependent measures were hit-rate, essentially the proportion of responses "Right" given that the signal occurred on the right, and false alarms, the proportion of responses "Right", when the signal was in fact on the left. In order to obtain separate numerical estimates of sensitivity and bias the choice theory parameters η and b (Luce, 1963) were computed from the matrix of stimulus–response contingencies (see Appendix for computational formulae). η and b are distribution-free indices of sensitivity and response bias respectively. η is basically a measure of stimulus similarity and will be interpreted in the present experiment as an index of auditory position memory.

METHOD

Subjects. Subjects were 14 spastic quadriplegic children resident in a school for the cerebral palsied in Brisbane. The mean age of the group was 10 years 9 months (range: 7 years 4 months–14 years 4 months). The group ranged in I.Q. (Stanford–Binet or Wechsler) from 74 to 94 with a mean of 85. All of the group had normal speech and adequate uncorrected vision and hearing. Each spastic subject was matched for sex and chronological age with a non-handicapped child. The reference group had a mean I.Q. (Stanford–Binet) of 101 with a range of 97–104. All had normal vision and hearing. All the children in the reference group attended the same school in a predominantly middle class area.

Apparatus and procedure. Only subjects who could correctly name their right and left sides took part in the experiment. The subject was seated in an adjustable chair and his head was fixed in a band around the head attached to the apparatus. To eliminate possible visual cues the subject was blindfolded. Above the subject's head two beams extended a distance of 4 ft and from each of which a small hearing-aid loudspeaker was suspended. Each speaker, one to the right, the other to the left, was 3° to the midline of the subject's head.

In the spatial task a step input tone (3200 dps) of 0·5 sec duration was presented on one of the speakers. The position of the sound was varied randomly with the provision that right and left occurred equally often. In the spatio-temporal tasks two step input tones were presented one on each speaker with a duration of 0·7 between the offset of the first and the onset of the second. The position of the second tone was varied randomly and right and left had equal probability. To ensure independence of signal and noise trials, right side events were arbitrarily regarded as "signal" and left-side events as "noise". The subject was either asked "Was the sound on the right?" (spatial) of "Was the second sound on the right?" (spatio-temporal). Consequently, "hits" were recorded when the subject replied "yes" when the signal was on the right, and false-alarms when he gave the same response though the signal was on the left. Subjects were tested in two sessions of about one hour on successive days. Each session consisted of 200 trials with spatial and spatial-temporal tasks counterbalanced (ABBA) in blocks of 50 trials. Knowledge of results were not given.

RESULTS

Table 1 shows each hit and false-alarm values for each subject. A 2 × 2 analysis of variance of hit rates with spastic vs non-handicapped groups as a between-subject variable and experimental conditions as a within-subject variable showed that both main effects reached significance, spastic vs non-handicapped ($F = 6{\cdot}57$, $d.f. = 1/26$; $p < 0{\cdot}025$) and experimental conditions ($F = 6{\cdot}22$; $d.f. = 1/26$; $p < 0{\cdot}025$), as did the interaction ($F = 12.64$; $d.f. = 1/26$; $p < 0{\cdot}01$). Newman–

TABLE 1. HIT RATE (HR) AND FALSE ALARM RATE (FAR) FOR EACH SUBJECT IN THE SPATIAL AND SPATIO-TEMPORAL CONDITIONS

	Spastic				Non-Handicapped			
Subject	Spatial		Spatio-Temporal		Spatial		Spatio-Temporal	
	HR	FAR	HR	FAR	HR	FAR	HR	FAR
1	0·71	0·29	0·60	0·27	0·62	0·28	0·61	0·43
2	0·61	0·39	0·59	0·41	0·65	0·45	0·60	0·40
3	0·87	0·50	0·35	0·65	0·65	0·25	0·75	0·44
4	0·55	0·46	0·57	0·43	0·61	0·42	0·68	0·27
5	0·73	0·25	0·50	0·51	0·85	0·45	0·75	0·33
6	0·67	0·29	0·58	0·42	0·84	0·48	0·61	0·29
7	0·82	0·46	0·58	0·36	0·92	0·45	0·71	0·48
8	0·51	0·45	0·59	0·27	0·67	0·43	0·81	0·44
9	0·67	0·33	0·50	0·50	0·61	0·44	0·80	0·27
10	0·88	0·36	0·51	0·44	0·61	0·37	0·64	0·36
11	0·82	0·45	0·60	0·55	0·82	0·38	0·79	0·32
12	0·71	0·29	0·60	0·50	0·79	0·25	0·83	0·28
13	0·75	0·25	0·83	0·48	0·87	0·40	0·88	0·35
14	0·68	0·32	0·55	0·40	0·83	0·41	0·80	0·25
Mean	0·71	0·36	0·67	0·44	0·74	0·39	0·73	0·35

Keuls comparisons showed that spastic and non-handicapped groups did not differ in the spatial condition and that the spastic group made significantly fewer hits in the spatio-temporal condition ($p < 0{\cdot}01$). A similar analysis of false alarms showed no significant differences between spastic and non-handicapped group ($F = 1{\cdot}95$; *d.f.* = 1/26) nor between experimental conditions ($F = 0{\cdot}67$; *d.f.* = 1/26). There was however a significant interaction ($F = 6{\cdot}45$; *d.f.* = 1/26; $p < 0{\cdot}025$). Newman–Keuls comparisons showed that the spastic group tended to make significantly more false alarms ($p < 0{\cdot}01$) in the spatio-temporal compared to the spatial condition while the non-handicapped tended to make significantly fewer ($p < 0{\cdot}05$). In all, therefore, the two groups do not differ in performance of the spatial task. The spastic group tends to make fewer hits and more false alarms in the spatio-temporal condition.

Table 2 gives values of η for each condition and Table 3 gives values of b (see Appendix). Analysis of η values showed a significant difference between subject groups ($F = 9{\cdot}88$; *d.f.* = 1/26; $p < 0{\cdot}01$) experimental conditions ($F = 5{\cdot}31$; *d.f.* = 1/26; $p < 0{\cdot}05$) and a significant interaction ($F = 5{\cdot}52$; *d.f.* = 1/26; $p < 0{\cdot}05$). Newman–Keuls comparisons showed no significant difference between subject groups in the spatial condition. The non-handicapped group did not differ between conditions. For the spastic group, however, performance in the spatio-temporal condition declined significantly ($p < 0{\cdot}01$).

Analysis of b values indicated no significant differences between experimental conditions ($F = 1{\cdot}46$; *d.f.* = 1/26) and no significant subject groups × experimental conditions interaction ($F = 1{\cdot}40$; *d.f.* = 1/26). The comparison between subject groups approached but did not reach significance ($F = 4{\cdot}13$; *d.f.* = 1/25; $p > 0{\cdot}05$). In other words there was some tendency for non-handicapped subjects to respond "Yes" rather more frequently.

TABLE 2. VALUES OF η (SENSITIVITY INDEX) FOR EACH SUBJECT

	Spastic		Non-Handicapped	
Subject	Spatial	Spatio-Temporal	Spatial	Spatio-Temporal
1	0·43	0·50	0·49	0·74
2	0·66	0·66	0·69	0·66
3	0·42	1·86	0·48	0·52
4	0·84	0·76	0·68	0·42
5	0·35	1·02	0·77	0·42
6	0·44	0·72	0·44	0·54
7	0·43	0·64	0·30	0·59
8	0·91	0·50	0·58	0·72
9	0·70	1·00	0·77	0·30
10	0·27	0·87	0·61	0·56
11	0·42	0·91	0·36	0·36
12	0·41	0·82	0·30	0·35
13	0·33	0·44	0·32	0·26
14	0·68	0·74	0·37	0·28
Mean	0·51	0·83	0·51	0·48

TABLE 3. VALUES OF *b* (BIAS INDEX) FOR EACH SUBJECT

	Spastic		Non-Handicapped	
Subject	Spatial	Spatio-Temporal	Spatial	Spatio-Temporal
1	1·00	1·41	1·25	0·87
2	1·00	1·00	1·00	1·00
3	0·42	1·00	1·27	0·64
4	0·98	1·00	1·00	1·11
5	0·97	0·98	0·45	0·79
6	1·10	1·00	0·46	0·80
7	0·56	1·13	0·37	0·66
8	1·10	1·33	0·81	0·56
9	1·00	1·00	0·86	0·82
10	0·49	1·13	1·06	1·00
11	0·52	0·74	0·60	0·75
12	1·00	0·82	0·89	0·73
13	1·00	0·45	0·48	0·50
14	1·00	1·11	0·58	0·87
Mean	0·87	0·94	0·79	0·80

DISCUSSION

Our results are evidence against the assumption that brain-damaged children will necessarily suffer deficits of spatial perception (e.g. Abercrombie, 1964; Birch and Belmont, 1964; Cruickshank *et al.*, 1965; Wedell, 1960–61). Spastic and non-handicapped children did not differ in sensitivity to spatial position when the problem was only to fix the position of a single tone. The two groups differed mainly in their ability to perform a spatio-temporal task. Our notion of perception assumes that perceptual skills develop in relation to motor skills. As Polanyi (1958) had made clear, a motor skill is a capacity for dealing with an indefinite range of ways. Explicit spatial judgements may, therefore, be grounded in an implicit grasp of the total situation based upon voluntary action. By definition cerebral palsied children suffer motor deficits and as a consequence may be less able to exercise the concept of space in perceptual judgements because of limited experience of independent mobility rather than because of brain damage *per se*.

It is interesting to speculate that some *particular* rather than general deficiency of movement control may underline the performance of spastic children in the present task. Platt and Warren (1972) have shown that auditory localization is poor if the subject is unable to move his eyes in the direction of the auditory target. Eye movements may serve, therefore, to update and stabilize auditory position memory (see Jones and Kabanoff, 1975). The spastic child may be able to initiate a single movement of the eyes toward an auditory target though he may not be able to control a temporal sequence of eye-movements. As a consequence he could localize a single auditory position but could not time the sequence of movements between two signals.

It is also possible that differences in I.Q. may be at least in part responsible for the observed deficit. The additional complexity involved in working through the question "Was the second sound on the right?" may have been beyond the capabilities of the spastic group or at least may conceivably have increased their anxiety in the spatio-temporal condition. The problems here are difficult to unravel. Since I.Q. is by definition a developmental measure and cerebral palsied children are likely for a variety of obvious reasons to develop rather more slowly than the non-handicapped matching the two groups for chronological age will almost inevitably mean that the cerebral palsied are lower in I.Q. Matching for I.Q. on the other hand will mean that the non-handicapped are somewhat younger. Neither comparison is perfectly satisfactory. In the present case we prefer to match for chronological age since we are trying in part to show that the existence of spatial deficits in the cerebral palsied need not be taken for granted. From this point of view a demonstration that the cerebral palsied do about as well as non-handicapped children two years or more younger would have proven very little. In practice the rank order correlations between I.Q. and performance (η) by the spatial group are quite low and approximately the same for both conditions, $r_s = 0{\cdot}24$ (spatial) and $r_s = 0{\cdot}29$ (spatio-temporal).

Although differences in response bias between spastic and non-handicapped children were not significant, there was a tendency approaching significance for the non-handicapped group to adopt a rather more lax response strategy; in other words the spastic children may be somewhat more cautious when making perceptual judgements. Such a difference in response strategies were it more extreme could seriously affect performance assessed in terms of, e.g. classical thresholds, or some measure of correct responses. Wedell (1960–61), for example showed that bilateral and left hemisplegic children made fewer correct responses compared to athetoid and right hemisplegic children on a test of visual spatial perception. Without a separate analysis of sensitivity to stimulus similarity and of response bias, it may be that the differences observed by Wedell are due to differential response strategies rather than differences in discriminative accuracy. Such effects need to be separately studied in any further work on perceptual abilities in the brain-damaged.

SUMMARY

Techniques which separate sensitivity and response bias were used to compare spastic quadriplegic and non-handicapped children in auditory spatial and spatio-temporal discrimination. The two groups did not differ in spatial discrimination and the spastic group were less sensitive to spatio-temporal position. Results are interpreted in terms of possible eye-movement involvement in auditory localization. We note the possible importance of separating sensitivity and bias in future studies of brain damage.

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APPENDIX

The computational formula for the choice theory parameters η and b are as follows.

$$\eta = \sqrt{\frac{MxFA}{HxCR}}$$

$$b = \sqrt{\frac{MxCR}{HxFA}}$$

Where in the present case

H = hit rate (the proportion of responses "Yes" given that the appropriate sound was on the right);

FA = false alarm rate (the proportion of responses "Yes" given that the appropriate sound was on the left);

M = miss rate (the proportion of responses "No" given that the appropriate sound was on the right);

CR = correct rejection rate (the proportion of responses "No" given that the appropriate sound was on the left).

H and CR are in other words the two types of correct response and FA and M are the two types of incorrect response.

As sensitivity or in the present case auditory position memory strength increases η will tend to zero. When the subject is unbiased $b = 1$. Values of b less 1 are associated with a bias toward responding "Yes" and values of b greater than 1 with a bias toward "No".

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SOCIAL REINFORCEMENT OF A MANIPULATIVE RESPONSE IN SIX- AND NINE-MONTH-OLD INFANTS

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INTRODUCTION

The earlier investigations of operant conditioning of infant social responsiveness had one important feature in common, in that they examined social reinforcement of social responses. Those investigators employed as reinforcement a composite social reinforcer contingent upon smiling behaviour (Brackbill, 1958) or vocalisation behaviour (Rheingold, Gewirtz and Ross, 1959; Weisberg, 1963). By means of this procedure the social responses of smiling and vocalising were demonstrated to be operants.

Subsequent investigators of operant smiling (Wahler, 1967) and operant vocalisation (Todd and Palmer, 1968) have essentially confirmed these earlier findings. Moreover, an investigation by Routh (1969) demonstrated significant vocal response differentiation within an operant conditioning paradigm so that composite social feedback contingent upon the production of "consonant" sounds resulted in an increase in the ratio of consonant to vowel-like sounds and vice versa, from baseline to conditioning phases. Consistently, the format of this type of investigation has been to employ a "social" response in conjunction with a composite social event as reinforcer. However, two investigations have used non-social reinforcers with social operants, but with variable success. Weisberg's (1963) highly controlled study, which incorporated a non-social reinforcement condition comprising a door-chime contingent upon the infant's vocalisation failed to demonstrate operant vocalisation under these circumstances. While far from conclusive this observation lends support to the idea that social reinforcement may involve certain intrinsic characteristics which are functionally prerequisite to the shaping of social and specifically vocal behaviour in the young infant. In this respect, Bloom (1974) has demonstrated the importance of eye contact as a setting or tuning event for the social reinforcement of vocalisations in three-month-old infants. Tomlinson-Keasey (1972) re-examined the effect of non-social reinforcement on operant conditioning of vocal behaviour with infants and observed that a combined bell and light feedback event (i.e. non-social) reliably increased the frequency of vocalisation. However, this investigator employed either the mother's voice or a 500 cycles per–sec tone as a discriminative stimulus so that the bell and light episode was presented contingent upon the emission of the operant only during periods when the discriminative stimulus was on. While no difference was observed between the voice and tone conditions during the con-

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ditioning phase of the study, greater resistance to extinction was observed for the mother's-voice-cue-group. This finding, however, requires qualification since other investigations have repeatedly demonstrated the powerful eliciting effect of vocal stimulation, independent of contingency, upon infant vocal production (Wolff, 1963; Kagan and Lewis, 1965). To this extent the findings on the relative efficacy of social and non-social reinforcement with human infants are somewhat equivocal.

From a different perspective, that of control in social situations, casual observation readily demonstrates that the social environment is not solely controlled by the reciprocal deployment of social operants and reinforcers, but very often is controlled by the use of non-social operants. In this respect, in particular, the present investigation differs from the earlier social conditioning studies of Brackbill (1958) and Rheingold *et al.* (1959) since in the present case there is no direct relationship between the infant's response and the social feedback. Instead, the present task situation requires the infant to operate on the inanimate environment in order to produce some response from the mother. In this way the relationship between response and feedback can be said to be *indirect*, by contrast to more *direct* procedures where emission of the social response on the part of the infant is reinforced by social feedback.

The object of this investigation is to demonstrate operant conditioning of a non-social operant under contingent social reinforcement and to examine this with infants at two age levels which have previously been demonstrated to show marked differences in the capacity to analyse response-feedback contingencies (Millar and Schaffer, 1972, 1973; Millar, 1974).

METHOD

Subjects

Forty-eight infants ($n = 31$ males, $n = 17$ females) were divided into two age groups as follows: six- and nine-months (mean ages: 6·14 and 8·83 months) respectively. Infants were obtained through child welfare clinics, and as far as could be ascertained from clinic case records, were clinically normal. Within each age group, the subjects were matched across experimental and control conditions to within ± 10 days. Altogether, 60 infants were examined, but of these 12 were excluded from the study because of persistent fretting or sustained disruptive behaviour ($n = 9$), prolonged distraction from the task ($n = 1$) and zero operant level ($n = 2$).

Apparatus

A matt-grey table-top with 46 cm high sides was employed. An adjustable infant seat was situated midway along the near-side of the table so that the table extended 46 cm on either side of the infant and 55 cm in front of him. A low seat was provided for the mother and was positioned at an offset angle from the infant's face-on position on the far side of the table. This permitted the mother when seated to be visually available to the infant throughout the procedure, although she did not actually face him except during contingency episodes.

The manipulandum comprised a 10 cm tall cylindrical canister rigidly secured to the table-top at 8 cm from the table edge directly in front of and within easy reach of the infant.

Control equipment provided the necessary switching gear to signal the mother by means of an ear-phone in order that she present the feedback to the infant. A portable Rustrak four-channel event pen-recorder was used to record manipulative responses. All control and recording equipment was operated from a soundproof room adjoining the experimental room, both of which were located in a mobile-laboratory unit.

Experimental design and procedure

A mixed design enabled both *between*-group and *within*-group comparisons. Age (6- and 9- months) and Contingency (contingent, non-contingent) were between-subject variables, with repeated measures on baseline, contingency and extinction phases, the within-subject variable. The 7 min procedure commenced with a 30-sec adaptation period, followed, with the infant's next response by a 30-sec baseline phase which established operant level of manipulation. Three-minute contingency and extinction phases followed consecutively. During the contingency period, feedback was provided either contingently or non-contingently upon discrete touch-down on the manipulandum using either or both hands. On occasions when the infant maintained contact with the manipulandum it was necessary that he *lift-off* at least one hand before further manipulation would restore the feedback.

Non-contingent stimulation involved the presentation of a matched amount of stimulation, but under this condition this was presented on a predetermined random time schedule. Non-contingent groups were matched on a subject to subject basis with contingent infants in terms of the actual number of feedback events/30-sec interval during the contingency period. This procedure effectively controlled for potential eliciting or arousal effects of the feedback stimuli.

Twelve infants at each age level were assigned to experimental and control conditions. The only restriction on random assignment to conditions was that, for the purpose of matching, infants who were to be administered contingent stimulation were tested first.

The infant was placed in the infant chair by the mother, the seat being adjusted to permit him to reach the manipulandum on the table-top directly in front of him. The mother seated herself on the low chair opposite and in full view of the baby, but facing 90° away from the infant, so that although continuously visually available she was not looking at him. The mother fitted the ear-phone and was instructed that on hearing an auditory signal she should turn her head so as to face the child, smile and say "peekaboo" in an attempt to catch his attention and then turn away to resume the gaze-averted position.

Discrete touching of the manipulandum was recorded by an observer who viewed the infant through a one way screen and simultaneously, in the case of the contingent subjects, the mother received the signal to initiate feedback. Baseline period commenced with the infant's first manipulative response after the settling-in period. The contingency period was defined as the 3-min period elapsing from the first response after the completion of the baseline. Similarly, the extinction phase was taken as the 3-min period extending from the first non-reinforced response occurring after the contingency period had ended. This applied to both contingent and non-contingent groups alike. This procedure of timing-out each phase from the first reponse effectively ensured that individual differences in latency to respond at the outset of each phase was not confounded with effective contingency time.

RESULTS

Response acquisition data

Figure 1 presents the curves for each age group across baseline, contingency and extinction phases for contingent and non-contingent presentation of social feedback.

An ages × contingency × phases $(2 \times 2 \times 3)$ analysis of variance with repeated measures on phases was undertaken on manipulative response frequency data for the baseline period (30-sec) and the final 30-sec period of contingency and extinction phases.

Baseline performance

Selected comparisons for age and contingency conditions revealed no significant differences in operant response levels across the four experimental conditions.

The effect of contingency and age on response acquisition

The principal finding emerged from the significant second-order contingency × age × phases interaction effect, $F\ (2,88) = 4{\cdot}91$, $p < 0{\cdot}01$. In fact this effect subsumed a reliable contingency × phases effect, $F\ (2,88) = 10{\cdot}82$, $p < 0{\cdot}001$, which

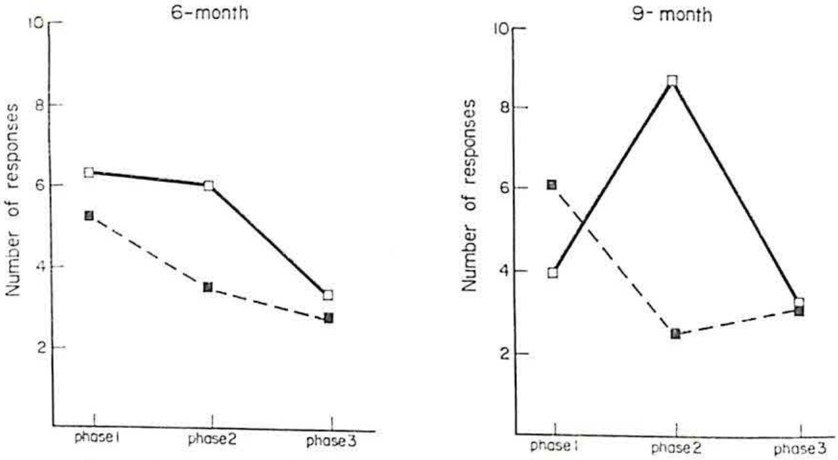

FIG. 1. Mean manipulative response frequency for six-month-old and for nine-month-old infants during baseline and the terminal 30-sec period of contingency and extinction phases under contingent (□——□) and non-contingent (■— — —■) social stimulation.

TABLE 1. SUMMARY OF AGE × CONTINGENCY × PHASES (2 × 2 × 3) ANALYSIS OF VARIANCE

Source of variation	*d.f.*	*m.s.*	*f*	*p*
Between subjects				
age	1	0·28	0·002	*n.s.*
contingency	1	66·69	5·09	< 0·05
age × contingency	1	0·28	0·002	*n.s.*
subjects within groups	44	13·10		
Within subjects				
phases	2	77·08	10·17	< 0·001
age × phases	2	8·36	1·10	*n.s.*
contingency × phases	2	82·03	10·82	< 0·001
age × contingency × phases	2	37·19	4·91	< 0·01
phases × subjects within groups	88	7·58	—	—

broadly speaking demonstrated the efficacy of contingency upon response acquisition. The second-order effect, however, demonstrated the effect of contingency, but by implicating age it also revealed that the contingency effect was not the same at both age levels.

In the case of the six-month-old infants selected comparisons of performance under contingent and non-contingent conditions revealed no difference during either baseline or extinction, but did reveal a difference during the contingency phase ($p < 0{\cdot}05$). Within-group comparisons revealed that this difference did not represent any acquisition since no reliable increase in responsiveness occurred under contingent feedback ($p > 0{\cdot}05$). In the case of extinction a reliable decrease occurred for the contingent group ($p < 0{\cdot}05$), but no alteration in responsiveness occurred for the non-contingent group.

The findings for the nine-month-old group present a more differentiated picture. No difference was observed during either baseline or extinction for contingent and non-contingent groups, but a reliable difference emerged during the contingency period ($p < 0{\cdot}001$). In fact selected comparisons revealed that this comprised two distinct effects. On the one hand, contingent feedback produced a reliable increase in responsiveness from baseline ($p < 0{\cdot}001$), whereas, on the other hand, non-contingent scheduling resulted in an almost equally dramatic decrease in responsiveness from baseline ($p < 0{\cdot}01$). Moreover performance during extinction revealed quite divergent patterns of responding depending upon the type of contingency scheduling previously experienced by the infant. Withdrawal of contingent feedback resulted, as expected, in a reliable extinction effect ($p < 0{\cdot}001$), whereas cessation of non-contingent stimulation produced no discernible change in responsiveness which was already low.

In the broadest terms the older infants revealed a reliable increase in responsiveness, but not so in the case of the younger infants. Moreover an equally differentiated picture emerged under non-contingent stimulation for the two ages with a dramatic drop in responding occurring for the older infants but not in the case of the younger infants.*

DISCUSSION

This investigation examined the efficacy of contingent social stimulation on operant manipulative behaviour where the mediating operant was non-social in nature. In the case of the nine-month-old infants the findings clearly demonstrate the effectiveness of contingent scheduling of social feedback, in that reliable acquisition and extinction effects were observed. By contrast, the six-month-old infants failed to show any increase in operant responsiveness under the contingency and although some decrease in performance was observed during the extinction phase this is most likely attributable to habituation and fatigue effects associated with the experimental situation. Non-contingent control procedures differentiated between operant and stimulus control of behaviour in the case of the nine-month-old infants who revealed the characteristic *suppression* effect which has been observed in earlier studies (Millar and Schaffer, 1972, 1973; Millar, 1972). The absence of a comparable effect in the six-month-old infants, while it contrasts with the performance of the older group, nevertheless is consistent with several previous investigations (Rovee and Rovee, 1969; Siqueland, 1968; Weisberg, 1963) undertaken with younger infants. In the present case, the suppressed responding of the older infants is unlikely to be a consequence of greater distraction, since, although these infants received more non-contingent stimulation, their overall amount of visual fixation of the feedback source was comparable to that of the younger infants and did not interact with contingency. Furthermore, an analysis of visual fixation of the manipulandum failed to reveal any interaction effect with contingency as would have been expected had a distraction effect been responsible for the low level of responding under non-contingent stimulation.

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*An analysis of duration of visual fixation data indicated that it seemed unlikely that the suppression-like effect observed under non-contingent scheduling could be attributed to greater distraction on the part of older infants resulting from the relatively greater amount of matched stimulation. In terms of duration of visual fixation to the feedback source more time, as expected, was spent fixating the mother during the contingency phase, but this was independent of both age and the contingency operating. Moreover, in terms of visual fixation of the manipulandum younger infants spent more time looking at this, but there was no interaction with contingency.

The failure to observe response acquisition in the case of the six-month-old infants contrasts markedly with previous studies which examined the influence of spatially discontiguous feedback on infant operant acquisition, i.e. *proximal* vs *distal* conditions (Millar and Schaffer, 1972, 1973). In fact, considerable spatial displacement of the manipulandum and feedback source could be tolerated by even the six-month-old infants so long as this was within the limits of the immediate perceptual field. In particular, Millar (1974) has recently demonstrated manipulative response acquisition under audio-visual feedback which emanated from a distal source directly in front of the infant, comparable, in fact, to the location of the mother in this investigation. Procedurally these earlier studies are highly similar in format to the present study excepting the use of social as opposed to non-social reinforcement in the present case.

Moreover, the findings for the six-month-old group also appears paradoxical in the light of the previous research undertaken with considerably younger infants which demonstrated operant control of behaviours under composite social reinforcement (Brackbill, 1958; Rheingold *et al.*, 1959; Weisberg, 1963). Thus, on the one hand, the manipulative response employed here has previously been used successfully as an operant, while, on the other hand, the efficacy of social feedback has been demonstrated independently (Brossard and DeCarie, 1968; Schwartz, Rosenberg and Brackbill, 1970). In the light of these facts, the finding that the six-month-olds are unable to integrate these response-feedback components when they are paired outwith these contexts becomes even more salient and requires explanation.

The use of social reinforcement contingent upon a manipulative operant clearly introduced some differentiating factor(s), not yet identified, which appears to have been critically responsible for the failure of the younger infants to learn in this situation, as well as their failure to respond in a comparable manner to the older infants when exposed to non-contingent scheduling of feedback. It is, in this respect specifically noteworthy that the earlier social responsiveness studies employed social reinforcement for social operant behaviour. Why younger infants should be capable on the one hand of operant control when social feedback is contingent upon a social response, and on the other hand, when non-social feedback is contingent upon non-social operants, yet be incapable of integrating these contingency components when they are cross-matched is an important question, although as yet a matter for conjecture. It may however strongly suggest the operation of developmental constraints on the acquisition of certain contingency relationships.

The existence of constraints on learning across the phylogenetic scale and their implications are only now being recognised by comparative and ethological investigators (Hinde, 1973; Seligman, 1970; Shettleworth, 1972). Seligman, in particular, points to findings which suggest both *between* and *within* species variance in *preparedness to associate* particular response-feedback contingencies. The present failure of the six-month-old infants to learn might indicate the operation of an ontogenetic constraint; i.e. in terms of building up associations infants may be capable initially of more "natural" integrations possibly in terms of expectancies and only subsequently, on the basis of greater generalised contingency awareness do they become capable of integrating more arbitrary components of the type employed in the present investigation. Weisberg's conspicuous failure to condition smiling in three-month-old infants using an arbitrary non-social feedback event, while successfully achieving this under social reinforcement lends support to this possibility. The earlier social conditioning studies, it will be recalled, successfully demonstrated acquisition of smiling and vocalisation behaviours. In these cases both contingency components could be described as *social* in nature. What differentiates these investigations from both the present study and Weisberg's non-social reinforcement condition was that one of the contingency components was non-social. In Weisberg's study it was the reinforcement which was non-social, whereas in this study it was the response which was non-social; in both situations however, acquisition could not be demonstrated. In the present study the difficulty was age-specific since it occurred at around six-months; by nine months of age there was no longer any indication of difficulty in handling this type of mixed contingency situation.

A further possibly relevant feature of these studies related to the fact that the composite social feedback episode included the reciprocal performance by the reinforcing agent of the operant under consideration, e.g. smiling and vocalising were reinforced by a social event which included respectively reciprocal smiling and vocalisation as components. It may be that it was this particular characteristic of the reinforcement which rendered the integration a more "natural" one for the infant and which might account for the relative ease of acquisition. In fact, Haugan and McIntire (1972) provide some support for this hypothesis in a study which examined the relative reinforcing efficacy of adult vocal imitation, adult administered tactile, and food reinforcers for vocalisations in three–six-month-old infants. Vocalisations increased reliably under all three conditions, although vocal imitation of the infant's vocalisation itself produced a reliably greater amount of vocalisation than did either tactile or food reinforcement.

In addition to these considerations, the task situation employed in the present study is quite different from that used in the earlier social responsiveness investigations. The important fact that it was necessary for the infant to relate to the mother via an arbitrary object in the environment and not simply by smiling or vocalising, as was the case in the Brackbill and the Rheingold *et al.* studies, may have had considerable bearing on the outcome. This procedural fact alone most probably rendered this mediated task relatively more difficult in terms of cognitive load on the infant. Given this sort of consideration it would not be at all surprising that the younger infants were less competent in this situation. Whether this point can account entirely for the observed age effect, or whether some more fundamental explanation is necessary remains as yet an open question. There can, however, be little doubt that this speculative issue raises certain basic issues which have potential ramifications for future social learning research in infancy.

SUMMARY

The acquisition of a manipulative response was examined in six- and nine-month-old infants under contingent and non-contingent maternal social stimulation. Reliable response acquisition was observed for the nine-month-old infants under contingent feedback, but not in the case of the six-month-old infants whose performance was not reliably different from non-contingent controls. A distinction is drawn between social learning paradigms which involve the social reinforcement

of social responses and those which involve the social reinforcement of non-social responses. The failure of the six-month-old infants to learn a non-social response under contingent social feedback is discussed in the context of differential preparedness to appreciate contingency relations within these paradigms.

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AGGRESSIVE AND NON-AGGRESSIVE FIGHTING IN TWELVE-TO-THIRTEEN YEAR OLD PRE-ADOLESCENT BOYS

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INTRODUCTION

This study uses ethological methods, previously mainly applied to young children (Blurton-Jones, 1972a), with pre-adolescent boys in a playground situation, to which these methods are well suited because of the ease of observation without disturbance, and because of the range of behaviour shown and its dominance over verbal communication. The whole range of behaviour was recorded but only the parts of the analysis concerned with aggression are presented here.

In young boys rough-and-tumble play, which includes playful fighting, can be clearly separated from true aggression (Blurton-Jones, 1967; McGrew, 1969). A similar separation can be made in young monkeys, but as maturity approaches the distinction between play-fighting and real fighting becomes more difficult to make (Hinde, 1974). I therefore wished to see whether the separation of rough play and real aggression persisted in older boys.

SUBJECTS

Boys at a suburban secondary school were observed during their lunch-break in the school playground. All sample members were in their second year at the school (age 12–13 yr), and were selected at random as they entered the playground. There was a steady wastage from the sample as boys changed schools, and at the time of analysis it numbered 34 boys. These boys were fairly evenly distributed between the four non-streamed classes in their year.

The class structure of the sample, using the Registrar-General's categories was, Class I, one; Class II, six; Class IIIN, five; Class IIIM, twelve; Class IV, six; and Class V, four. There were five boys whose parents had been divorced and two in homes.

METHOD

The boys were observed from a first-floor window giving a view of the whole of the rectangular tarmac playground. The playground was enclosed by high wire fences on its two long sides, the further end being open to playing-fields; boys could enter the school through a door under and to

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one side of the observation window. There was no playground equipment. Areas outside the playground were out of bounds, but boys went over the playing-fields towards a girls' school beyond, on to the boiler-house roof behind the wire fence on one side and on to the senior playground behind the fence on the other.

Behaviour was recorded by a running commentary spoken into a tape recorder; binoculars were used to observe facial expressions at the further end of the playground. This method allows flexibility in the recording of rapidly succeeding events. Twenty 2-min recordings were made for each boy. As far as possible boys were observed in a rota, so that alterations in weather, school regulations, etc. affected all similarly; and they were not observed more than once daily. I tried to avoid observation of one boy on two successive days. When a boy had been absent for some time it was occasionally necessary to make two observations on one day; they were then spaced as far apart as possible.

ANALYSIS

The commentaries were transcribed on to paper, the actions counted, coded and punched on to IBM cards for correlation and factor analysis by the Fortran programme "FACTOR" by Clyde *et al.* (1966) with Varimax, Kaiser (1958) rotation, as modified by B. Carter for the University of London CDC 6600.

The analysis used the individual samples of behaviour obtained from the 2-min observation periods; only observation periods which gave a continuous 2 min of behaviour were used. In order to see if some types of behaviour were habitual to some individuals while others were equally common but more widely scattered over a larger number of individuals, a second analysis (not presented in detail here) was made. For this the data from the 20 observation periods for each boy was totalled and an analysis made of these totals.

Factor analysis has been used to show the separation of rough-and-tumble and true aggression in the structure of young children's behaviour (Blurton-Jones, 1972b), and its application here to older boys allows a direct comparison of whether the same separation applied to them also. As well as the conventional split-half reliability analysis, the data were analysed without the hostility/rough-and-tumble/air "qualifiers" (see Table 1 and next Section) which recorded the reactions of victims attacked by the boys being watched, to test whether the apparent structure of the behaviour was altered by specifying the victim's response.

All categories used in the factor analysis are listed in Table 1. In some cases actions separated in more detailed glossaries had to be combined due to limitations on computing capacity; the combined actions are given in brackets. Detailed definitions agree with those in the glossaries produced by contributors to Blurton-Jones (1972a) (in most cases these agree with the dictionary definition). Spot-check tests of interobserver reliability, using a previously naive observer with two days' experience of the categories used, gave average reliability of 87·2%.

The definition used for "hostility" is that of Manning (n.d.)* modified for the different behaviour of these older boys, and corresponds to "true aggression" (Blurton-Jones, 1967; McGrew, 1969). "Rough-and-tumble" corresponds to the usage of these authors, while "air qualifier" covers the wider range of actions in

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*A hostile act is one which often evokes reactions from others which imply that it is damaging (e.g. protest, retaliation, withdrawal, crying, telling friend or teacher. I have considered an act as hostile only if it *actually* caused "damage", not if it was of a type which *often* did—this distinction is in practice more important with younger children (Neill, in preparation).

TABLE 1. BEHAVIOUR CATEGORIES USED IN ANALYSIS

Hostility qualifier (= see below; refers only to actions marked Q)
Rough-and-tumble qualifier (Ditto)
Air qualifier (Ditto)
Q Handwrestle (= wrestling without body contact)
Q Wrestle
Q Strangle (twist arm, etc.)
Q Punch (= hit with straight arm)
Q Swinghit (= hit with horizontal swinging motion)
Q Beat (= hit downwards; Blurton-Jones, 1972a)
Q Kick boy
Q Push
Q Chase
Q Grab
Avoid (flee)
Fend (flinch)
Attacked (= see text)
Touched
Touch (hold) (= persons only)
Smile (playface)
Frown
Puckerface (pout)
Hand to face
Fumble (groom self)
Hands at chest
Hands in pockets (at hips)
Watch
Talk
Shout
Wave arms
Gesture (point)
Arm up
Ritualised (= ritualised movements, miming, ritualised/traditional games)
Bounce (swing) (= on object or fixture)
Move (walk, turn)
Still (stand)
Squat
Sit (lean)
Climb
Jump (skip)
Run
Ball qualifier (= refers only to actions marked F, if performed to a ball)
Object qualifier (= ditto, if performed to any other object)
F Catch (pick up, intercept)
F Throw
F Kick
F Carry (hold, manipulate)
Watch ball
Miss (= attempted catch)
Tackle–win (= whether initially in possession of ball or not)
Tackle–lose (= Ditto)

Definition of fighting Qualifiers
Hostility qualifier = action causes victim to frown, retaliate, etc., i.e. victim distressed.
Rough-and-tumble qualifier = victim smiles or neutral face, etc., i.e. victim not distressed.
Air qualifier = action does not cause contact with victim, who is not distressed.

older boys which correspond to "hit at" and "incomplete beat" in younger ones.

In this paper "hostility" is used only for behaviour corresponding strictly to Manning's definition, "aggression" where only the normal usage definition is implied.

RESULTS

Only factors with loadings for fighting actions are presented; other factors represent football* (which occurs as the first factor, and occupies most of the time of many boys), other active games, and inactive social behaviour. Loadings on each factor above 0·199 are given in size order, with split-half reliabilities in brackets. The sample analysis was also performed with all qualifiers removed, as a further test of the reliability of the distinctions made.

SAMPLE ANALYSIS

Factors which did not contain loadings for fighting actions are listed in Table 2.

TABLE 2. FACTORS WITHOUT LOADINGS FOR FIGHTING ACTIONS

The sign containing higher loadings is given first

Number	% of total variance	Behaviour represented
1	9·69	Football (−), quiet social (plus)
3	4·56	Throwing games (plus) (no minus loadings)
5	4·07	Active social (plus) (no minus loadings)
10	3·13	Move/touch (plus) Lean/bounce (−)

The more heavily loaded sign is given first

Total variance accounted for by all ten factors: Main analysis, 48·13%; split-halves, 51·91 and 49·11; no-qualifiers, 47·19%.

Four sets of figures are given for the factors listed below; first the main analysis loading, followed by the two split-half analysis loadings and by the no-qualifier analysis loading (marked by NQ).

Factor 2 (1, 2, NQ, 2)
Accounts for 8·18 (9·52, 8·21, NQ 6·79)% of total variance.
No positive loading above 0·199

Rough-and-tumble qualifier	−0·893	(0·864,	−0·898,	NQ ——)
Strangle	−0·790	(0·787,	−0·815,	NQ −0·622)
Wrestle	−0·730	(0·533,	−0·818,	NQ −0·573)
Push	−0·703	(0·741,	−0·709,	NQ −0·677)
Handwrestle	−0·609	(0·681,	−0·526,	NQ −0·580)
Grab	−0·508	(0·061,	−0·605,	NQ −0·148)
Hostility qualifier	−0·437	(0·109,	−0·482,	NQ ——)
Beat	−0·430	(0·784,	−0·209,	NQ −0·699)
Attacked	−0·358	(0·515,	−0·185,	NQ −0·469)
Chase	−0·338	(0·136,	−0·396,	NQ −0·089)
Climb	−0·287	(0·796,	0·029,	NQ −0·636)

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*British version of the game.

This factor carried loadings for fighting of a wrestling rather than a hitting type; split-half reliabilities are good above 0·600 and the factor is little affected by removal of the qualifiers (which indicate the victim's reaction). The qualifiers indicate that this type of fighting is chiefly rough-and-tumble, but can be hostile. It was often apparent that in fights of this type the loser might become distressed if the fight continued; conversely, the attacker might start vigorously, causing distress, and then become more playful, often after pinning the other boy down. The loadings for Attacked shows this type of fighting is also shown by victims who are retaliating.

Factor 4 (4, 6, NQ4)
Accounts for 4·94 (5·48, 4·35, NQ 4·21)% of total variance.
No positive loadings above 0·199

Air qualifier	−0·851	(−0·882,	−0·859,	NQ ——)
Punch	−0·763	(−0·778,	−0·804,	NQ −0·604)
Swinghit	−0·662	(−0·810,	−0·219,	NQ −0·597)
Fend	−0·310	(−0·419,	−0·188,	NQ −0·472)
Touch	−0·266	(−0·247,	−0·214,	NQ −0·140)
Beat	−0·254	(−0·210,	−0·346,	NQ −0·111)
Ritualised	−0·234	(−0·174,	−0·086,	NQ −0·170)
Handwrestle	−0·222	(−0·249,	−0·022,	NQ −0·333)
Touched	−0·213	(−0·255,	−0·037,	NQ −0·093)

Loadings on this factor represent low-intensity fighting actions typical of gentle sparring without much body contact, and the factor remains identifiable without the air qualifier (which implies no body contact). On one split-half analysis and the no-qualifier analysis the loading for touched is replaced by one for attacked; this factor represents the behaviour of both instigators and "victims" of low-intensity fights.

Other factors containing fewer fighting behaviour loadings, and with poorer split-half reliabilities, are listed in Table 3.

TABLE 3. FACTORS CONTAINING LOADINGS FOR FIGHTING BEHAVIOUR

Number	The sign containing higher loadings is given first % of total variance	Behaviour represented
6	3·85	Attacked (−), inactive (+)
7	3·22	Frowning, etc. (+), playful chasing (−)
8	3·40	Climbing/playful fighting (−), aggressive grabbing (+)
9	3·09	Still/uncertain/spar (−)

The low percentages of variance accounted for by the factors given above probably reflects the fine detail of the categories used in the observations; much of the individual variability of pieces of behaviour is preserved, and while this does avoid the disadvantages of arbitrary categorisation at the time of observation, it does render categorisation by the factor analysis more difficult. However factors 2 and 4 extracted by the analysis correspond to the two most subjectively obvious types of fighting apparent in the playground; medium/high intensity body-contact fighting which ranged from playful wrestling with smiling by both participants to unequal fights where the aggressor continued despite distress to the victim (some fights changed from one to the other during their course, as mentioned above); and secondly, low-intensity sparring, almost always playful in nature. These types of fighting remain recognisable whether the qualifiers indicating the victim's response are included in the analysis or not. The avoidance behaviour of more subordinate boys appears in factor 6; aggressive chasing was rare, though it probably appears in factor 8 plus; neither can be reliably traced through the split-half analysis. (A number of fighting actions were quite rare and this accounts for poor split-half reliabilities in some cases.) The only distinctive fighting type which does not occur in the analysis was high-intensity fighting; it was seen only twice during the course of the observations and was not recorded. These fights were prolonged and usually resulted in minor injury in the playground situation, where no weapons were available. Boys involved were red-faced and sometimes tearful; unlike medium/high intensity fights there was no attempt at avoidance. Such fights usually attracted the attention of all boys in the playground and intervention by staff.

Factor analysis of the totalled scores for each boy confirmed the subjective impression that individual boys habitually fought in characteristic ways; the rough-and-tumble/aggressive style, characteristic of more vigorous boys, appeared on factor 2 and sparring fighting, characteristic of the less assertive ones, on factor 4; the latter factor also carried some loadings corresponding to the "attacked" loadings obtained on factor 6 in the analysis of individual behaviour samples (Table 3), again confirming the subjective impression that the less assertive boys tended to be those who were picked on by the more assertive. There were a number of other factors with loadings for fighting behaviour, several representing the characteristic behaviour of particular cliques of boys.

DISCUSSION

Fighting plays a much larger part in the behaviour of this age than in that of younger boys; observations I carried out on the behaviour of 5-yr-old boys using the same protocol and analysis showed that fighting behaviour formed a much smaller proportion of their behaviour, and there was the same distinction between rough-and-tumble play and aggression as found in more complex indoor environments (Blurton-Jones, 1967, 1972b; McGrew, 1969). Levels of hostility were low in the younger boys as there were few objects to quarrel over (Blurton-Jones, 1967) in their playground.

The greater amount of fighting and intermingling of hostility and rough-and-tumble in the older boys is not therefore due solely to the different environment in which they were observed.

There are several possible causes for this difference. The increased strength of larger older boys means they are more likely to inflict pain unless there is an actual reduction in the intensity of fighting; at this age increasing testosterone levels with approaching puberty (Tanner, 1962) would be more likely to lead to increased aggressiveness. Even in nursery school children aggression is positively reinforced by the avoidance responses of the victim and children tend to select victims who show pain for further attack (Patterson *et al.*, 1967). Initially non-aggressive children may be "coercively reinforced" into aggression as the only effective way of dissuading attack (Patterson and Cobb, 1971). Accumulating experience should reinforce this tendency with age. Perry and Perry (1974) found that 11-yr-old boys continued to increase simulated punishment only when the resulting simulated pain cues were low, and suggested that the aggressor continued to step up his response until satisfactory evidence of the victim's pain (i.e. submission) was obtained, a very similar situation to the threat behaviour of many animals. This corresponds to Maynard-Smith and Price's Prober–Retaliator Strategy (1973). This interpretation would agree with a view of the hostile/rough-and-tumble fights as a means of asserting or maintaining dominance; once the weaker boy has registered distress the bond can be maintained by the fight taking a more playful form, but if he does not do so at the start of the fight, the stronger boy may increase the intensity of the fight until he does.

The situation among less assertive boys is probably somewhat different; it appears that the avoidance shown to playful sparring attacks may be sufficient for the more dominant of two such boys, and fighting usually does not progress beyond this mild threat stage. Hostile fights between such boys are infrequent, and the hostility/rough-and-tumble distinction present in young children may persist here.

This raises the question of whether the transition to an intermingling of hostility and rough-and-tumble occurs in all boys; what form (sudden or gradual) it takes; what age it occurs at and whether this age is uniform; what influence environmental factors may have; and whether anything similar occurs in girls. These questions are not new, but may benefit from investigation with a more precise definition of hostility than the general definition of aggression generally used.

The intermingling of playful and hostile fighting in older boys may have two results. In young children imitation of rough-and-tumble play from peers extends to direct copying but hostility is only facilitated (Neill, in preparation); if the motivation of these two behaviour types becomes less distinct with age, hostile behaviour might be more likely to be directly copied from peers instead of being merely facilitated. There has been much experimental work on imitation of aggression (Neill, in preparation) references therein, including observations under natural school conditions (Freidrich and Stein, 1973) in preschool children, but there is so far no experimental work to indicate whether direct copying of aggression occurs under natural conditions in older boys, though there is much anecdotal evidence to indicate that it does (Ward, 1973; Blakstad, 1974).

Secondly the mixture of rough play and hostility which is apparent in interpersonal fighting appears to extend to delinquent and vandalistic behaviour, much of which falls into the category of "play vandalism" (Cohen, 1973); direct imitation would again be expected in this behaviour. Masculinity and daring are important features of the ethos of delinquent boys, and are important criteria for what they consider to be exciting television viewing (Halloran *et al.*, 1970). It would therefore seem that the blurring of the line between rough play and aggression leads to a wider extension of social influence in aggressive behaviour which is probably a major feature in the behaviour of adolescent gangs, excepting only high-intensity fighting of the type occasionally seen in the playground which had no social or playful elements.

SUMMARY

Ethological observations were made of 34 boys in a secondary school playground, covering all aspects of behaviour, including fighting. Factor analyses were performed on individual samples of behaviour; the two main types of fighting were vigorous fighting, usually playful but often causing distress to the victim and playful fighting of low intensity. Fighting of the first type is rare in young boys, and it is suggested that this intermingling of rough play and aggression in older boys exposes aggression to social influences which in younger boys are confined to rough play.

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A NOTE ON THE EATING BEHAVIOUR OF CHILDREN VARYING IN WEIGHT

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INTRODUCTION

THE SUCCESSES of behaviour modification in the treatment of obesity (e.g. Stuart, 1967; Manno and Marston, 1972) have mitigated somewhat the years of negative findings in this field. In establishing a comprehensive program for weight reduction based on behavioural techniques suggested by both the clinical and experimental literature (Schachter, 1971) the present authors recognised the need for changing the actual pattern of eating behaviour during a meal. To meet this need it was necessary to obtain careful observations of the difference between obese and non-obese subjects in eating response. This was done unobtrusively with adult subjects in a restaurant setting (Marston *et al.*, 1974). It was found that thin eaters, particularly women, showed the following pattern: lower frequency of bites, smaller mouthfuls, more extraneous responses (e.g. hesitation, putting down utensils, more food left on the plate, and shorter stay at the table after eating.) Gaul *et al.* (1975) report similar results with adult subjects.

The pattern found in adults was utilized in the training program, orienting toward helping the obese to eat more like their thin counterparts. It seems important, both for clarifying the etiology of obesity and for developing treatment and prevention programs for children, to determine whether the pattern described above is evident at an early age.

The present study utilized essentially the same structural observation techniques used in the restaurant, to record the eating behavioural pattern of children in a school cafeteria. Children in three elementary school age groups were observed as unobtrusively as possible in three areas of response: speed, extraneous movement, and gross ratings of mood, tension and apparent enjoyment of food.

METHODS

The observer stationed herself at the side of an elementary school cafeteria for most of the lunch periods during a one month period. After a few days, the children apparently took no notice of her as she recorded her observations on a clipboard. At no time were the children directly contacted so that all data had to be based solely on the observations. Three objective characteristics of the children could be used to match groups of subjects: age (three grade groupings appeared in the cafeteria at separate times), sex, and number of children eating with the observed subject. The observer attempted to balance her subjects within age and sex groups (e.g. if, on day one, she observed a relatively fat girl in the 6–8 yr age group, she tried, on day two, to observe a relatively thin girl in that group.).

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The word *relatively* is used because assignment to the category *fat* or *thin* was solely on the basis of the observer's judgement, with one of the authors having trained her and established subjective guidelines for assignment. The reliability and validity of the classification can only be assessed in terms of the outcome of the comparisons between the two groups. It was both the observer's and the senior author's opinions that the label *fat* was a difficult one to make in that, except for a relatively few cases, the degree of obesity was mild.

With the difficulty in identifying fat subjects and matching groups, eight pairs were selected out of 32 subjects observed. The fat and thin member of each pair were same sex, same age group: four pairs were male; four were in the 6–8 yr range, three in the 9–11 yr range and one in the 12–14 yr range; two ate alone, four in groups of two or three, and two in groups of four. All subjects observed were served the full school hot lunch.

After noting time at which the subject began eating, the observer took two separate samples of eating, in sequence. The first was defined as five bites. For each bite, the observer recorded a mark for any of the following responses emitted: looks or hesitates before bite, picks at or toys with food, puts down utensil or fingers food between bites, drinks while chewing, drinks after chewing, wipes mouth with napkin. These responses, with the exception of "drinks while chewing", constitute what was found in the adult study to be the pattern typical of the thin eater.

The second eating sample was defined as a three minute period. The observer recorded frequency of bites and chews per bite. She also made an estimate of size of mouthful on a five point scale. It was planned that the observer would repeat these two types of sample for each subject, as was done with the adults, but the brevity of the meal with children precluded this for most of the group.

At the end of the meal the observer recorded time remaining at the table after eating, whether the subject ate dessert, whether he left any food on his entree plate, and three point ratings of apparent general mood, perceived tension level, food enjoyment, and overall eating speed.

RESULTS

(a) *Speed measures.* All results were statistically analysed using dependent measure comparisons between the eight matched pairs of fat and thin subjects; non-parametric statistics where appropriate; one-tailed tests since direction was predicted from the previous study. There was not a significant difference between the groups in total eating time, Students $t < 1{\cdot}00$. The mean time for all 16 subjects was 8·4 min, almost half the time of the adults in the previous study. No analysis was done on time at table after eating, since virtually all of the children left for the playground immediately.

The overall speed rating showed the fat children eating significantly faster (Wilcoxin $T = 0$, $N = 6$, $p < 0{\cdot}025$); mean rating 1·7 (labeled *Fast*) vs a mean of 0·8 (labeled *Moderate*) for the thin children. This difference was reflected both in the measure of bites per 3 min (Student's $t = 2{\cdot}04$, $p < 0{\cdot}05$) and chews per bite (Wilcoxin $T = 3$, $p < 0{\cdot}025$). The thin children took almost half the mean frequency of bites (7·1 vs 12·1) and more than twice the number of chews per bite (13·0 vs 5·3). Size of mouthful was not analysed because almost all of the children had a modal rating of three (medium) in the five point scale.

(b) *Thin eating responses.* The thin children left significantly more food on their plates (Wilcoxin $T = 3$, $p < 0{\cdot}025$) than the fat children; mean rating 0·9 (1·0 was labeled *half left*) vs 2·1 (2·0 was labeled *less than half left*).

Three of the *thin eating responses* (hesitates, toys with food, puts food or utensils down between bites) were grouped together for analysis. The thin children showed significantly higher frequency of these responses (Student's t on arc sine conversion of the proportion of observed frequencies to maximum of 15 possible, $t = 5{\cdot}06$,

$p < 0.01$); mean of 2·88 vs 1·75 for the fatter children. A separate analysis was done on drinking liquid between bites or while chewing. The thin subjects did more of their drinking between bites. (Student's t test on the difference in frequency, $t = 2.14$, $p < 0.05$). For the thin subjects the difference in frequencies of drinks yielded a mean of 1·38 in favour of between bite drinking. For the fat children the mean difference was −0·50, i.e. more drinking while chewing.

The ratings of mood, tension, and enjoyment of food did not yield any significant group difference.

DISCUSSION

The results of the observation on children yielded essentially the same pattern shown by adults. Fatter children ate faster (more bites per unit of time, fewer chews per bite), but, eating more, they spent about the same total amount of time eating. They also hesitated less between bites, toyed less with their food, and drank more while chewing.

That the specific behavioural patterns associated with obesity are present in childhood is not conclusive evidence of causality. Nevertheless, the findings indicate the need for treatment and prevention studies with children to evaluate training oriented toward slowing down the eating process. The traditional dicta to eat slowly, put one's fork down, chew thoroughly, and not drink with one's mouth full, now seem sound health advice with regard to obesity as well as digestion. However, the parent who chastizes her child for toying with his food or urges him to clean his plate would appear to be contributing toward the development of an eating pattern associated with obesity. While not focusing on eating *per se* F. M. Alexander, many years ago (Barlow, 1973), described how one learns very specific and sometimes minute patterns of misusing the body, often leading to wide-ranging functional and organic difficulties.

The present study was not of sufficient magnitude to evaluate the developmental sequence of the eating pattern. It would now appear to be important to replicate with larger samples at each age period and with samples at younger ages. It should be noted that the nature of the hypotheses make it impossible to avoid observer bias (i.e. he knows he is looking at obese vs non-obese children). However, earlier findings of high observer reliability (Marston *et al.*, 1974) and reliability training of the present observer reduce concern about bias somewhat. Ultimately, experimental studies manipulating eating speed (now in progress), clinical studies of treatment involving training in slow eating and observation of parental eating problems will be necessary to remove this concern entirely and to establish the causal link between these eating styles and obesity.

SUMMARY

Eight pairs of six to fourteen year old children, one member obese and one non-obese (matched on age group, sex, and number of children eating together), were observed unobtrusively as they ate lunch in a school cafeteria. A pattern of eating found in obese adults (faster rate of biting, less chewing, and more extraneous responses during eating) was found in similar form in these mildly obese children. The results were discussed in terms of early onset of behavioural patterns relevant for the prevention and treatment of obesity.

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ANNOTATIONS

SUB-CLINICAL LEAD POISONING IN CHILDREN

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Overt lead poisoning in childhood has been recognised increasingly during the last 30 years. Although the sources of lead are numerous, the predominant association is with old lead-based paint. In the U.S.A. there are now numerous well-established lead programmes aimed at the identification of children at risk so that in the year ending June 1975, 28,597 children were found to have evidence of undue lead absorption *(Morbidity and Mortality Weekly Report*, 1976). In the U.K. the problem has attracted less attention and it is thought that less than 100 cases are diagnosed each year with 2 - 3 deaths (Department of the Environment, 1974).

Much confusion has arisen from the problem of the definition of the term "poisoning" and failure to appreciate the fate of absorbed lead. The response to the ingestion of lead-containing materials is relatively slow so that a child with pica ingesting flakes of lead-based paint containing 1,000μg of lead per day is unlikely to present with clinical symptoms for 4 - 5 months (Chisolm and Harrison, 1956; Barltrop and Killala, 1967). Similarly, the return of the tissue lead values to normal after the cessation of exposure is also likely to be prolonged.

Several grades of exposure may be defined which correspond with the lead content of the soft tissues. For practical purposes, soft tissue lead may be equated with the blood lead concentration (Barltrop, 1968). Children in the "normal" population (Grade 1) are likely to have a blood lead of less than 40μg/100ml and children in Grade 2 (asymptomatic) have values in the range 40-80μg/100ml. Clinical symptoms may, but do not necessarily, occur at blood lead values in excess of 80μg/100ml (Grade 3). Cerebral involvement and death may occur in association with blood lead values in excess of 100μg/100ml (Grade 4).

The neurological sequelae of lead encephalopathy were well summarised by Byers (1959) who reported that 38% of post-encephalopathic children who survived were sufficiently brain-damaged to warrant the description "non-competitive". Other workers have described cerebral palsy, visual impairment with optical atrophy, cranial nerve lesions, increased liability to convulsive disorders, and visuo-motor defects even in the absence of intellectual impairment (Thurston *et al.*, 1955; Perlstein and Attala, 1966).

Since these early reports there has been controversy as to whether sub-encephalopathic exposure to lead is of clinical significance. There are essentially two schools of thought. The first adheres to the "all or none" hypothesis which attributes neurological damage to the consequences of severe cerebral oedema accompanying encephalopathy. From this point of view there is nothing specific in the induced cerebral changes or sequelae which can be attributed to lead and the observed changes do not differ materially from the encephalopathies associated with other heavy metals or even the viral encephalitides. Thus, it is argued that while sub-clinical exposure to lead resulting in blood lead concentrations of the order of 80μg/100ml might produce clinical symptoms, they are entirely reversible and unless encephalopathy occurs there is no likelihood of permanent neurological or behavioural impairment.

This concept has been challenged by some authors with the alternative view that encephalopathy is merely a final point in a continuous spectrum of exposure and that increasing blood lead values merely increase the probability of cerebral damage and neurological sequelae. These hypotheses are not easy to test and few studies in this field are above criticism in their experimental design (Wiener, 1970). Thus, Moncrieff *et al.* (1964) described increased blood lead values in a group of mentally retarded children but failed to appreciate that this was unlikely to have been a causative association. The practice of pica may be unduly prevalent in some retarded children (Bricknell, 1976) and, in any case, blood lead values tend to return to normal after the cessation of a damaging exposure. Recently David *et al.* (1972) have suggested that hyperactivity might sometimes be produced by the effect of absorbed lead. This view was based on observation of children attending a psychiatric clinic who, when given a chelating agent (a substance which removes lead from the body) excreted larger quantities than controls. Their blood lead levels were in the normal range, although they differed statistically from those of the control children. Similarly, animal studies have been reported in which behavioural disturbances have been observed after relatively modest exposure to lead (Silbergeld and Goldberg, 1973). Unfortunately in both these studies, the method of selection of controls has been open to criticism.

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A number of recently published studies report the effect of lead in communities living close to lead smelters. Landsdown *et al.* (1974) studied such a group of children, and found no evidence of intellectual impairement or hyperactivity, even though some of the children they identified showed blood lead levels in the 40-80μg/100ml range. A comparable study in the U.S.A. (McNeil and Patasnik, 1974) reported similar conclusions, although, when their children were compared with a different control group, some inconsistent differences in the expected direction were found with respect to a small number of tests of motor performance and visuo-spatial ability. (Landrigan *et al.*, 1975).

It is difficult to avoid the conclusion that some of the conflicting data might reflect variations in the selection of the control groups used and that the changes reported in some children exposed to lead are probably not due to the effect of its absorption. The I.Q. is known to be subject to a variety of social influences, and numerous causes of hyperactivity have, of course, been recognised (*British Medical Journal* 1975). The view expressed by some that children with blood lead levels over 20μg/100ml are a cause for concern (Carnow, 1975) is difficult to reconcile with the available evidence.

Further, there does not appear to be any *a priori* reason therefore to attribute behavior disorders or mental retardation to moderate increase in blood lead concentration (40-80μg/100ml). Nevertheless where a child showing either of these problems is suspected of having been in a contaminated environment or is known to suck non-food objects, the blood lead should certainly be investigated.

The discovery of a blood lead concentration greater than 40μg/100ml is an indication of undue absorption and merits an investigation of potential sources, measures to prevent further exposure and a search for other similarly exposed children in the family group and in the locality. The urgency with which these steps are taken should be related to the severity of the exposure. Although only a minority of such children will require chelation therapy, it may even sometimes be necessary to consider removal of the child from the contaminated environment (preferably to a different but familiar setting) until the source of lead has been identified and made safe.

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THE DEAF CHILD: CONTROVERSY OVER TEACHING METHODS

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This review will focus upon the effects of a controversy over methods upon the prelingually severely or profoundly deaf child and his family, briefly assess the available evidence, and outline some implications.

(i) *Conventional assumptions*

Most of us have been taught to believe that deaf children can learn to speak and lipread if given the proper education and family support (Ballantyne, 1970). Speech is seen as the primary indicator of language competence: all efforts are thought to justify oral success, including early auditory training, surrounding the baby with speech, and years of special education. The adult deaf who use sign language are presumed to have received an inadequate education or to have other problems, and the customary emotion may be pity that they must be segregated in a special group instead of joining the "hearing world". It is almost expected that such unfortunates would be severely limited, since thinking is equated with verbal language.

(ii) *The problem*

The speech intelligibility and lipreading ability of most prelingually deaf persons is very poor (Rodda *et al.*, 1974) and their academic success, measured by the usual criteria such as reading, is dismal (less than half the attainment of those who can hear, though of normal intelligence). Many of those for whom a purely oral education was most appropriate, were postlingually deafened by infections or were those who were severely hard of hearing; more now are prelingually deaf. The conventional oral training is extremely arduous for all concerned, years of effort being typically required before much useful speech emerges, if at all. In the intervening period the child has little or no language and is not fully a part of what is going on around him (Conrad, 1975). This raises unanswered questions about the timing of input into presumably biologically programmed maturational sequences in the developing brain. In addition, we have no useful predictors of success in either oral speech or lipreading. Since many phonemes are indistinguishable from others on the lips, deaf lipreaders must depend largely upon context for clues, an almost impossible task for the deaf with little knowledge of English.

(iii) *The controversy over methods*

The so-called "oral-manual controversy" has raged for some 200 years (Furth, 1966;) and has lately become more heated, particularly in North America. (The Proceedings of the special conference on this subject, hald by the Royal National Institute for the Deaf in 1975, are an excellent source of further information and divergent views.) Space limitations prevent much elaboration here, but essentially the questions are: (a) Can many deaf children learn to speak and lipread well enough to function comfortably in social intercourse with hearing persons? (b) Does the use of manual communication inhibit or facilitate speech development? (c) Is sign language a language, and if so, is it inherently inferior to English? (d) Can the various means of communication be combined educationally without confusing the deaf child? (e) As a parent, what do I risk if in the early years my child has no effective means of communication? (f) Ultimately, the question may be: can I conceptualize my deaf child as a deaf adult who, though he cannot speak or lipread well, can still be fully human and successful person in his own way; or is training him to be like hearing people (and unlike the deaf) a prerequisite to my full acceptance of him?

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(iv) *The pure oralist position*

Most deaf children can be taught to speak and lipread; this is much better than using an "esoteric" means of communication which segregates the deaf into their own subculture. Gesture should be kept to a minimum, and sign language forbidden because it will destroy the chance of oral success. Sign language is seen as inherently inferior to English; it may also be felt to be repulsive as well, indicative of failure and stupidity.

Even it it is admitted that the present success rate leaves much to be desired, the method may be rescued by blaming failure upon the lack of sufficient trained teachers of the deaf, too late a start, or the failure of the parents to follow instructions. After a fair trial (which may extend throughout primary school), a manual method may be resorted to for failures (and even earlier for those with multiple handicaps).

Oralists may differ among themselves in the age of starting amplification (Griffiths, 1975); age of introduction of lipreading; and the acceptability of temporary auxiliary aids to foster understanding of English. There are two auxiliary methods developed in the USA which are also in limited use in the U.K.: (a) cued speech (Cornett, 1975) employs arbitrary hand signals around the mouth which, when combined with speech movements, make homophonous phonemes distinguishable; and (b) the Rochester Method (Scouten, 1967) combines one-handed fingerspelling with simultaneous speech.

(v) *The "total communication" position*

There are no advocates for purely manual methods; all agree that useful speech and lipreading are assets to the deaf. However, most of the deaf cannot become oral successes; we can't predict who will succeed; sign language does not inhibit speech development; the deaf child should not remain a stranger to his own family for years. *All* methods are to be used from the point of diagnosis, if appropriate. Only time will tell which combination best suits a deaf child. The family should learn sign language so the deaf child can be fully included in activities and social learning; it is easier for them to do this than for him to learn their methods of communication. The child should be in a class with other deaf children, whether in a regular or special school. Becoming a member of the deaf community is seen as inevitable and not to be scorned. It is expected that in later life an interpreter will sometimes be necessary when dealing with hearing people; learning good English is valued, but will be employed primarily in reading and writing. Success does not depend upon intelligible speech or skilled lipreading. The family is encouraged to have contact with the deaf community and to value the deaf subculture which their child will partly share. (In North America this approach is replacing the older purely oral one and is supported by sign language classes for parents and siblings; in some schools containing special classes for the deaf the hearing students may receive academic credit for the study of sign language as a foreign language, thereby increasing the range of peers with whom the deaf child can communicate.)

There are also differences among total communication advocates, primarily based upon which form of sign language should be taught first: the language used by the deaf community (which is not English), or a variant based upon English syntax. In North America there are several variants of manual English, all based upon the signs of the deaf, employing English syntax and grammar. They are intelligible to the adult deaf, but are often felt by them to be stilted, formal, and lacking in emotional expression. In the U.K. the Paget-Gorman System (Wells, 1972) is artificial and not based upon the sign language of the deaf; some praise and others deplore it for this reason.

(vi) *Deaf children and their families*

No one should underestimate the effects of this controversy, especially when combined with other disadvantages which may affect the child. There is often a long delay betwen suspicion (usually by the mother) and confirmation of the diagnosis (Freeman *et al.*, 1975). The values and assumptions of physician, audiologist, and teacher of the deaf may combine with the understandable parental wish to eliminate the effects of the hearing loss, leading to a prolonged and ultimately rather unsuccessful period of intensive oral/aural training. Some parents may hopefully accept isolated indications of success (words and practiced sentences); others gradually lower their expectations to the point where communication at a primitive, concrete level is not an obvious source of worry, even in adolescence (Freeman *et al.*, 1975; Schlesinger and Meadow, 1973). Subtleties, extenuating circumstances, reasons for reactions and emotions may remain inexplicable to the child. Deaf children are also more likely than hearing children to be hospitalized in early life, change residence and school often, and have few friends of their own age (Freeman *et al.*, 1975). (There is no increase in parental separation and divorce however). It is thus apparent that deaf children may have to cope with more adaptive tasks with fewer communicative tools, a finding which complicates the attribution of cause for a behavior disorder to any one factor.

(vii) *Present evidence in the controversy*

Early manual communication does not inhibit speech and lipreading according to several studies (Brasel and Quigley, 1975; Schlesinger and Meadow, 1973), rather it seems to facilitate it by providing a language base. The various sign languages of the deaf are legitimate languages which, like any other have advantages and disadvantages, dialects and different levels of sophistication, and they are now being actively studied by linguists. Although traditionally stigmatizing, they are not inherently inferior. Speech and lipreading are not necessarily useful criteria of life success or adjustment (Furth, 1973) and the presence of other handicaps does not always preclude adequate adjustment (Freemen *et al.*, 1975). It is to be expected that deaf and hard of hearing persons will have difficulties in informal social situations with hearing persons, no matter what their oral ability (Fine, 1974).

There is no conclusive evidence, however, that during childhood the children in an oral program are more behaviourally disordered than those in a total communication setting; given the many factors operating, including selection bias, the absence of a powerful effect is not surprising (Freeman *et al.*, 1975; Furth, 1973).

(viii) *Implications*

In evaluating a deaf child it will often be helpful to consider (a) the history of suspicion and diagnosis of deafness and the family's understanding of the information and advice given at that time; (b) the general inadequacy of formal psychological tests in assessing intelligence and learning potential; (c) the family's goals for the child (defect- or growth-oriented); (d) the extent to which the child can share in family communication and any frustrations entailed; (e) history of unusual adaptive tasks and the family's way of dealing with these; and (f) the effects, if any, of the controversy over methods of communication. (It is especially important for psychiatrists and psychologists not to interpret the defective written English of the deaf as indicating a thought disorder).

Some families may have had no opportunity to discuss their worries and doubts because those working with the deaf child discourage it. They may be more willing to do this with an outside person, but alternative programmes may not be available.

COMMENT

The present educational system works poorly for deaf children and entails risks for them and their families. Fragmentation of services with different orientations is now common in both North America and the U.K. Political action groups and strongly held views make governments reluctant to act decisively in the face of tradition, as was apparent in the Lewis Report (Department of Education and Science, 1968). Because values and emotions are so strongly engaged, weighing the evidence cannot lead to a present resolution of the controversy. Similar problems have occurred in the past with other handicaps such as blindness (Freeman 1976) and took many years to settle.

It would seem, however, that the advocates of the traditional system should be required to provide evidence that it meets the needs of most deaf children, now that many of its assumptions are disproven or in doubt. Any method which requires that the child fit the system, rather than the reverse, has an immense obligation because of its focus upon defect and failure.

Clearly in the present state of knowledge and services, those who are aware of the many unsettled questions should be wise enough to avoid simplistic answers or diagnoses to explain away failure or behavioural disorder in deaf children.

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CRITICAL NOTICE

Child Personality and Psychopathology—Current Topics—Vol. 1. Edited by Anthony Davids, Wiley Interscience, New York, 1974, pp. ix + 239.

This is the first in what is planned to be a series of volumes appearing intermittently and covering current topics in personality and psychopathology of children and youth, edited by Professor Davids, a clinical psychologist at Brown University. Each volume is to consist of original papers addressed to various aspects of the frontiers of research in psychology, education and psychiatry. Papers may take the form of reports of research projects or critical integrative reviews. As such, this first volume is of interest not only for itself but also as a harbinger of the series. It is aimed at academicians, clinicians and graduate students (which would presumably also include residents in psychiatry). Collected volumes would therefore form a sort of openended textbook in a constant state of revision.

This volume begins with a preface to the series summarised above, followed by an introduction to this first issue, both by the editor. The introduction consists of a terse and accurate synopsis of each of the papers and as such would be very useful to a browser or to refresh one's memory after reading the book. The six papers themselves are divided equally into two areas the first of which, personality development and disorders, as the name suggests, is not exactly tidy but the second on childhood psychoses is, however, homogeneous enough.

The first paper by Biller is concerned with paternal deprivation and largely, though by no means exclusively, with its effects on cognitive function especially academic performance. This is a competent, useful and readable review of a much neglected area. Biller's conclusions, scarcely surprising perhaps, are that fathers do matter to a child especially before the age of four or five and that a warm, nurturant, continuous relationship with a father or father substitute leads to desirable personality and academic performance. The father's effect is complementary to the mother's but is most differentiated from hers in families where sex stereotyping is most conventional. There is a great deal of useful material on sex role stereotyping effects on personality and cognition and an examination of the undesirability for male and female children of the female dominated or "feminised" classroom so characteristic of the American elementary school and to a lesser extent, New Zealand school system.

The second paper is a report by Eron and others on a massive study of the effects of certain parental and social variables upon the concurrent and subsequent development of aggression and "psychopathology" in a group of New York suburban children first seen around eight and again at 18 years of age. The study which relies heavily on correlational and multivariate statistical analytic techniques makes hard reading. There was a wastage of about 50% of the sample, and the measure of "psychopathology" being confined to the uncommon one of psychoticism derived from the MMPI, detracts from the usefulness of the study. The chief findings were that parental influences on concurrent aggression at 8 and "psychopathology" at 18 were strong, negligible on aggression in boys at 18 and that effects on the two sexes were different. Watching violent TV programs at 8 was the best predictor of subsequent aggression. Aggression and "psychopathology" behaved quite independently and were concluded to be different phenomena, scarcely surprising. The findings would appear to be valid only for a group of children who remain in the same suburb most of their school life and who complete high school. All correlations are small in size (highest 0·31). The chief value of this paper is to point the methodological procedures for and difficulties in doing this sort of study. It is a noble effort, but as with most prospective studies, it wasn't planned that way, rather as a sudden afterthought ten years later or the sample loss could perhaps have been avoided.

The third paper is on phobias of childhood by Miller and others and like the first, is a readable and useful review of symptomatology, classification, normative data, etiology, treatment and prognosis. Miller points out that fears or mild phobias are very common in childhood, tend to be age specific and have a short life. This ought not to be surprising to anyone familiar with the work of Jersild and Holmes but it is doubtful if much of the intended audience of this book would be so.

The first paper on childhood psychosis is by Rimland who writes with his usual lucid, forceful and not always objective style. This is a useful update of his thinking on autism, in particular of the status of his diagnostic checklist (now in its second version) and his new etiological form. Rimland's main points are scarcely arguable—let's agree on what we are going to call autism and compile a registry of such cases which will form the basis for studies of symptomatology, etiology and treatment. Clinicians have been trying to achieve this for years in various ways ranging from Creak to the American Orthopsychiatric Association but only Rimland seems to have the necessary charisma or disdain for his colleague's views to get some degree of unanimity. More power to him—it scarcely matters whether his views are too narrow, right or wrong, at least he has provided a framework for testing the heuristic value of his classification. It is clear, however, as he himself points out, that his definition of autism (or rather Kanner syndrome) includes only a small proportion of psychotic children which leaves the problem of the majority unsolved.

Then follows a review by Lovaas of his work with psychotic (? autistic) children over the past ten years based on operant type behavior therapy, aimed at eliminating self destructive and self stimulatory behaviors and at teaching language and appropriate social behaviors. Lovaas is careful to emphasise that his is a research program involving only twenty children and that its goal is primarily to learn more about autism and its treatment than to present a definitive treatment program. The long term follow-up is fairly disappointing, particularly where institutionalisation of the child followed—such children slipped right back, though their skills could be revived in much less time than originally. This is a useful and readable exposition of one of the more important developments in childhood psychosis and it is good to see such a re-evaluation even if considerably less optimistic than Lovaas' original (and Rimland's current) views of it.

The last paper is by Schopler entitled "Changes of Direction with Psychotic Children" which is mostly a well deserved but rather passe attack on Bettelheim and the psychogenic school, a defence of parents of psychotic children and a description of his own method of management, "Developmental Therapy Program" which, like all others except perhaps Lovass', is not evaluated in any formal way. This paper is largely discursive and its standard falls well below that of the remaining five papers.

The first question to be answered is whether this volume is worthwhile in itself. Four good reviews, one rather tedious research report and one undistinguished review are, I suppose, a good average for an edited volume. The narrower focus of each paper distinguishes it from most existing texts in childhood personality and psychopathology though most of the topics are critically reviewed even if not in as much detail in existing texts which have the added advantage of covering a wider area. None of the contributions is or should be any longer highly controversial as suggested by the editor, except perhaps among the uninformed and the old guard of child psychiatry. A slender volume like this would be a great advance if it were to have a price advantage but this is likely to be achieved only if it produced as a paperback rather along Penguin lines rather than a hardback, high quality and high cost volume. It is scarcely substantial enough on its own to merit a general recommendation, particularly at the price.

This raises the second question of this as the first volume in an openended text. It could be a useful volume in such a context since the problem of keeping up to date is a real one and the high cost of journals scarcely permit extended coverage of a subject as has been done in this volume, but the cost problem referred to above is likely to be a serious one for a series. If the volumes appear too frequently the cost will be prohibitive whereas if they don't appear often enough, coherence and usefulness will be limited. At the moment then, this book can be recommended really only to libraries and judgment about its right to a place on the bookshelves of those for whom it is intended must be reserved until a series of volumes has appeared and the cost problem solved.

J. S. Werry

J. Child Psychol. Psychiat., Vol. 17, 1976, pp. 235 to 247. Pergamon Press. Printed in Great Britain.

BOOK REVIEWS

Dyslexia. Margaret Newton and Michael Thomson. University of London Press, London, 1975. pp. vii + 56. 75p.

More Help for Dyslexic Children. T. R. Miles and Elaine Miles. Methuen Educational, London, 1975. pp. vi + 74. £2.35, paperback £1.20.

People with Dyslexia. British Council for Rehabilitation of the Disabled Working Party, B.C.R.D., London, 1974. pp. xvii + 160. £1.

Three more books on dyslexia: not a prospect to rejoice the soul! Nor is the spirit perceptibly lightened after studying them, partly, I suspect, because each in its way reflects our continued dilemma about defining this condition, but does little to resolve it, although all three books seem to be moving away from neurological overtones towards a situation where any child whose reading disability is not the product of intellectual or emotional handicap will be "dyslexic". The Miles explain: "the word *dyslexia* invites us to take the disability *seriously*"—in other words, if I have a cold I blow my nose, if I have coryza I take to my bed.

Newton and Thomson direct their book to teachers and parents and from the outset have communication problems. Much of their currency is jargon: "sequential symbolic system", "interference task", "concrete mediational strategies", "person-oriented styles" and other arcane phrases abound, none of them in the 12-item glossary. *Neurological* and *sound-blending,* surprisingly, are defined. So is *cerebral dominance:* "a term originally used by neurologists to describe the hemisphere of the brain which processes language". Whoops!

It may be that this ambivalence about their audience has influenced their general stance. Sometimes they pronounce authoritatively with no tremor of doubt, blush of temerity or hint of evidence: retarded readers will do better than backward readers, they say; 85 per cent of the written English language is governed by rules: and so on. Sometimes they prefer the truism: "the needs of the primary school will differ from the secondary stage" and "the use of mnemonics", they remind us "is a useful memory aid".

On the whole, this is a puzzling product of the Aston Index team, written perhaps in a hurry, offering little if anything new, and for parents, particularly, confusing rather than helpful.

The Miles family are on stronger ground. Their previous volume *On Helping the Dyslexic Child* was well-received, and they address themselves confidently to teachers with material most of which has been around for at least a generation, but which is presented clearly and logically. For those who go for a highly-structured teaching programme much beset with rules made explicit this would be a useful handbook, but it makes concession neither to the contribution to reading theory of the psycholinguists, nor to Professor Miles' own recent dictum that the main feature of dyslexia is an inability to retain complex information over time. For example, the complexities of even one of the rules suggested for junior school children would be inhibiting even to the normal reader. It is all very reminiscent of Frank Smith's twelve easy ways of making learning to read difficult, but presumably it works for the Miles in their Bristol Clinic, which perhaps shows that teachers are more important than methods.

People with Dyslexia is the report of a working party commissioned by the British Council for Rehabilitation of the Disabled. Chairing it was the last public duty of the redoubtable John Kershaw who graced public medicine for many years and wrote with distinction on the problems of handicap. He died immediately after completing the writing of this report. Although the working party's terms of reference related to the needs of dyslexic adults, its report is substantially preoccupied—I believe rightly—by what happens to children with reading problems, and the extent to which early identification and adequate teaching might prevent or at least ameliorate later handicap.

It deals with definition by discarding the World Federation of Neurology's 1968 essay as too narrow and embracing a medical dictionary definition:

> "... *difficulties in learning to read and write which affect a minority of children exposed to normal educational processes who do not show backwardness in other school subjects.*"

A wide enough definition, in all conscience, but soon to be modified by the exclusion of educational and cultural deprivation and of emotional disturbance. No further help is offered towards pinning down the condition, but whatever it is, there are probably at least 90,000 school children suffering from it, we are told, and "it is reasonable to assume that a substantial number [of illiterate delinquents] will be more or less dyslexic". If one is surprised at the number of similar unsupported and equivocal statements from such an influential committee, almost all of them doctors or psychologists, one must also recognise some important recommendations, many of them echoed in the Bullock Report, some of them even on the way to implementation.

There is no doubting either, the value of the report in emphasising again, the existence of people with special reading problems. It says nice things about the Tizard Report and perhaps is a useful step towards reconciling the views of the believers and the non-believers. LESLIE RIGLEY

Psychoanalysis and Contemporary Science. Volume III. Edited by LEO GOLDBERGER and VICTOR H. ROSEN. International Universities Press, Inc., New York, 1975. pp. xiii + 557. $15.00.

PSYCHOANALYSIS and Contemporary Science is the third volume of an annual publication started in 1972. The editorial board consists of psychologists and psychoanalysts, who believe that for the progress of psychoanalysis it is essential that it should be studied as a scientific discipline within the framework of the biological and physical sciences. Additionally, that psychoanalysts should give careful consideration to the conceptualisations of other disciplines which study the mind. The present volume consists of fifteen articles dealing with philosophical issues, theoretical models and quantitative and experimental studies of psychoanalytic propositions. The overall scientific bias is noticeable even in the clinical papers which aim at conceptual clarification rather than a description of clinical phenomena. Papers on psychopathology and technique are not included in the present volume.

In their emphasis on the biological foundations of psychoanalysis the Editors have identified themselves with Freud's early theory of mental functioning, which explained psychological phenomena in neurological terms. Although in his later formulations Freud agve up the search for neurological correlates, the biological orientation was retained in the final theory. A reading of his works on dreams, cultural phenomena, psychopathology and therapy, however, suggests an alternative way of looking at psychological data. According to this theory, psychological propositions are to be explained in terms of their meaning rather than the underlying biological processes. Although this trend is not widely discussed in the present volume, Rosen's article, "The nature of verbal intervention in psychoanalysis" describes this point of view. The psychoanalyst, according to Rosen, searches for meanings instead of causes, and he tries to translate the patient's communication through signs and signals into conventional language.

The articles in the theoretical section of the book are devoted to an examination of psychoanalytical theory and suggestions for its modification. For example, Rubinstein, who has already published several articles on theory, describes a model of mental functions based on a computer model. In his article, "On the role of classificatory processes in mental functioning", he states that psychoanalysis as a scientific discipline studies organisms not persons, and that its propositions must be compatible with what is known of the way the brain functions. By utilising the concept of a "classifier" as a psychological structure, he explains diverse mental functions—perception, object representation, motivation, fantasy, symbol formation and defences. Furthermore, his model is able to explain processes without the controversial notion of psychic energy and its mode of operation in Freud's theory. In another article, Globus describes a model, based on neurophysiology, which explains conscious and unconscious processes that is consistent with the study of the brain. While the authors are careful in making modest claims for their theories, their ideas are most stimulating.

Since the observation of rapid eye movements in sleeping infants twenty years ago, the study of dreams has been a major area of research for psychologists and neurophysiologists. The discovery of physiological correlates of dreaming stimulated interest in Freud's theory and raised hopes for its validation. The experimental findings, however, were too diverse and conflicting to be explained by the theory, leading some workers to opt for purely physiological studies, while others pressed for a revision of the theory. Both these trends are represented in the articles on dream and sleep research in the present volume. Fischer and his colleagues, for example, present a detailed report of their psychophysiological study of night terrors. The findings are discussed in terms of psychoanalytical theory, but there is no attempt to explain the discrepancy between the facts and the theory. Compared to the above study, Fiss *et al.* reject the psychoanalytic theory of dreaming as a discharge phenomenon, and describe it as a need of the ego. In order to test their hypothesis they studied the effect of dream interruption over a period of time. Following the experience of being woken while dreaming, within a few nights the subjects "learnt" to complete their dreams in a shorter period. Their dreams, moreover, were more intense and they represented the underlying emotional conflicts. The idea of dreaming as a "need of the ego to complete an organised and meaningful function" is similar to the theories of Richard Jones, discussed by Umbarger in the present volume.

As it is not possible to discuss all the articles in a short review, I would like to mention some of them. Mahler's paper on the sub-phases of the separation–individuation phase of development and Pine's discussion of the concept of libidinal object constancy, will be of interest to the student of child psychology and the clinician. Since so few of the writings of Jacques Lacan are translated into English, Bär's critique of his theory is most welcome. The experimental psychologist might like to read Lubrosky and Gottaschalk's articles on the recording and analysis of data from psychoanalytic sessions.

The usefulness of this series for the student of psychoanalytic theory is unquestionable. What the non-specialist, however, would like to see is an assessment of the contributions of the approaches discussed towards the advancement of psychoanalysis.

K. MEHRA

Transcultural Psychiatry. ARI KIEV. The Free Press, New York, 1972, pp. xii + 223. No price given.

THIS is a sensible book on transcultural psychiatry. It puts the influence of culture on psychiatry in its correct perspective and does not suffer from the weakness of elevating exotic conditions to questionable pinacles nor from the ethnocentricity of some other works on transcultural psychiatry which overplay the influence of culture on the identification, manifestation and treatment of mental illness. The author has questioned the wisdom in the tendency to elevate culture-bound disorders to distinct nosological entities. This is indeed a legitimate question.

There are some strong statements, however, which cannot be justified. For instance, to state that "inner standards never develop" (p. 12) is to make the mistake of assessing standards by a Western yardstick, just as the statement giving conscience as an example (p. 50) will suggest that rural people have low conscience.

The author cited Amara in the assertion that thought blocking is difficult to demonstrate because of the Africans' customary difficulties with expression and verbalization (p. 48). It is very doubtful if experienced psychiatrists working in Africa will agree with this. This illustrates the danger of generalizing from a particular to the general. Another example of such generalization is that hysteriform illnesses occur with high frequency among Africans (p. 50) an implication drawn from Lambo's statement.

While the references are comprehensive, it would be more helpful if references to the source of some information are given. For instance, on p. 86, the author refers to epidemics of conditions similar to malignant anxiety in Kenya, Eastern Nigeria and the Congo without giving the source of his information.

Perhaps it will be too much to expect absolute accuracy of terms and words from so many cultures to which the author has referred. Nevertheless, it has to be mentioned that the term "Yoruban" is not usually used when reference is made to the Yorubas of South-Western Nigeria and Dahomey. The Gelede cult is from Egbado and not Ebado.

The first chapter deals admirably with theoretical considerations. Chapters two, three, four and five deal with the problem of Normal and Abnormal, the effect of culture on Psychiatric Disorders, Culture-Bound Disorders and Prescientific Medicine and Psychiatry respectively. These chapters contain very interesting information with enlightening comments and explanation.

The last two chapters are of immense practical value, not only to the foreign psychiatrists going to work in developing countries, but also to indigenous psychiatrists working in their own countries. In spite of the criticism of the medical model of psychiatry from some quarters, it is noteworthy that the author sees the medical model as lending itself so well to developing countries. With regard to the American psychological model, in contrast to the medical model that is so prominent in England and Europe, the implication is that psychiatrists from developing countries will be better equipped by training in England and Europe except that training in America is specially tailored to the medical model for trainees from developing countries.

The author discusses the place of traditional healers in the mental health services, but did not emphasize enough the different categories of traditional healers even in the same community and the problem of collaborating with them. He rightly suggested the need for more detailed study of their therapeutic approach and practice before one can decide on its rationality and the possible level of co-operation.

The suggestion that training of psychiatrists from developing countries should be limited in some areas by emphasizing advanced training in social and community psychiatry instead, leaves itself open to the criticism of offering only second rate training for psychiatrists from developing countries. Nothing will be lost by exposing such trainees to psychotherapy provided they are made to realize that it may not be useful in most cases they will encounter in their countries. After all, it is also transcultural psychiatry for them to know about psychiatry as practised in Europe and America.

TOLANI ASUNI

Children's Drawings as Diagnostic Aids. JOSEPH H. DI LEO. Brunner/Mazel, New York, 1973. pp. 221. Unpriced.

CHILDREN's drawings are seductive. They are easily understood by children themselves, they are quick to execute, relatively simple to score and, by including shape copying and the drawing of a family doing something, are open to elaboration which can include tentative diagnosis of brain damage, dyslexia, emotional disturbance, aphasia and subnormality. It is the "tentative" qualification that has to be kept firmly in mind when reading this book since di Leo's enthusiasm and the captivating examples can carry one along to a belief that all any diagnostician will need is a pencil and a dozen sheets of paper.

His basic premises are that drawings are culture free; they "make a statement about the child himself and less about the object drawn; they follow a developmentally determined sequence; children who are emotionally and physically intact draw in a similar way and disturbed and physically impaired children draw in a way that is deviant".

The developmental sequence of drawings of a person has been well established by Goodenough and more recently by Harris. Di Leo's claims that the DAP test is "generally a valid expression of intelligence" cannot, however, be fully accepted. Strumpfer and Mienie, e.g. found only low to moderate validity coefficients in their 1968 study. Once again we are back to a "tentative" qualification.

More challenging is the thesis that deviant children produce deviant drawings. The immaturity of undoubtedly neurologically impaired children is a fairly straightforward matter when one argues from the child to the drawing. But when more marshy areas are examined the claims are, once again, to be taken with caution. Dyslexia, e.g. is seen as basically an inability to cope with letter shapes: if a child cannot recognise and reproduce simple geometric forms then, di Leo asserts, he is in need of perceptual training. An early epidemiological study of this position was made by Lowder in 1956. Correlations of about 0·5 were found between shape copying and academic attainment; statistically significant but explaining only 25% of the variance.

Even less evidence is available on the validity of the child's drawing as an indication of emotional disturbance. Machover's early work in this field was criticised by P. E. Vernon in 1964 following a failure to validate the claim that distortions and omissions in a drawing are indicative of disturbance. Hidden hands have been interpreted as an expression of guilt feelings, large hands symbolise aggressive tendencies, and so on. Di Leo, himself, is uneasy about excessive claims and hedges himself round with "mays" and "mights". His ambivalence about the validity of such statements is shown in his section of arms: he sees the omission of arms in 5–6-yr-olds' drawings as one of four indications of emotional disturbance. But he quotes a population study showing that 33% of all 5-yr-olds omitted arms.

The book is summed up in his work on physically handicapped children. Some deaf children leave out ears in their drawings, some do not. He concludes his chapter on the topic thus: *Returning to the question under consideration, whether children specifically portray a physical deviation, my answer is an affirmative qualified by "sometimes"*. Exactly.

RICHARD LANSDOWN

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Vernon, P. E. (1964) *Personality Assessment.* Methuen, London.

The Journal of Psychological Research in Mental Subnormality. (Vol. 1, No. 1). Edited by Donald Mackay, Ruth Elliott and Gerry McDonald. P. Bennett, Newry, N. Ireland, 1974, pp. 75. £3.00 annual sub. (£6 for libraries), from Muckamore Abbey Hospital, Co. Antrim.

This new six-monthly journal appears at a time when it has become generally accepted that the field of mental handicap is one in which a multidisciplinary approach is necessary to tackle the daunting and complex problems which have prevented practice from quite catching up with research findings. There might therefore be a danger that so very specialized a journal will appeal chiefly to psychologists. The editors are three psychologists at a subnormality hospital in Northern Ireland who have personally contributed seven of the nine papers in the first issue and another seven papers to the forthcoming issue for May, 1975. So it is launched very much as a House Journal for the Psychology Department at Muckamore Abbey, though doubtless it will hope to attract contributions from farther afield.

Elliott studied visual discrimination and suggests that autistic children have difficulties in processing visual input causing inability to interpret meaningfully. In a further paper she demonstrates that autistic children have an overwhelming preference for spatial (i.e. position) coding over visual strategies and their perseverative errors demonstrated a particular difficulty in switching to a new response after earlier ones are no longer relevant. O'Connor discusses experiments on memory coding-order which demonstrate that certain groups of deaf, autistic and subnormal children, whilst able to use speech for communication, yet are hampered in ability to manipulate language as an aid to thought. McDonald and MacKay showed that short term memory of spoken digits was disrupted by interposing immediate prolonged interference with a tone at 75 dB intensity. They conclude that the first 3 sec are important for initial processing, and note that mongols showed a particular vulnerability to such interference. McDonald and MacKay in another paper compared recall of lower order digits (1–5) with upper order (5–9) and found that greater familiarity with the former and better appreciation of their quantitative relationships facilitated order recall. MacKay and Eloina de Parra (who probably reappears in a May, 1975 sequel as Eloina Ortega, enhancing the cosy family feeling of this journal) study reaction times to a red light shown in a semi-darkened room to the mongols, "epileptics" and "undifferentiated subnormals" that tend to be used for such experiments. The epileptics did best! Throughout all these papers no hint is given as to the reactions of the subjects to the procedures in human terms. Were they paid for participating or was the unusual individual attention itself sufficiently rewarding? Were any messages arising from the results conveyed to care staff or teachers?

Such reflections emerged even more forcibly from the paper by MacKay and McDonald with "a member of nursing staff" (queer designation, and the whole journal is reticent about disclosing contributors' qualifications and appointments) about self-mutilation. Now here is a distressing topic of burning concern and one in which psychologists have made a major contribution to treatment through behaviour modification techniques. Yet this paper merely enumerates the types and frequency of self-mutilation at Muckamore, 165 individuals, approximately one-fifth of all the patients in the hospital. It somewhat complacently concludes that "potentially dangerous outcome" is infrequent and that "it was difficult for the nurses to say" that wrenching out whole tufts of hair was potentially dangerous! Now, there is a potent subject for psychological research, what nurses in subnormality hospitals find difficult to say and what easy. One looks in vain through the contents of Vol. 1, No. 2 for a paper about research into management and treatment of self-mutilation from this team of psychologists and their colleagues at Muckamore, yet this is surely what most readers of *The Journal of Child Psychology and Psychiatry and allied disciplines* would hope to find in a journal about psychological research in mental subnormality?

MacKay and two of his colleagues write about emigration and subnormality and find that Northern Ireland has been left with a higher rate of severe subnormality than other parts of U.K., but the rate in Eire is even higher! So with these extra Irish problems perhaps it is churlish to mention that the new journal shows signs of having been produced economically in difficult circumstances, with layout and printing betraying haste in preparation and the pages stapled into a "shocking pink" cover. Whilst this first issue does suggest that the editors see it primarily as an outlet for psychologists to write for other psychologists, perhaps it could develop into a journal with a wider interest for members of the many related proefssions who work together to help mentally handicapped children.

P. GRAHAME WOOLF

Adolescent Immaturity. I. N. KUGELMASS. Charles C. Thomas, Springfield, Illinois, 1973. pp. xvi + 319. $12.50.

THIS IS an unusual book written by a remarkable man who taught chemistry before becoming a paediatrician interested in the psychiatric problems of adolescents. It attempts to convince the reader in a persuasive and epigrammatic style that immaturity is the basis of most psychiatric disorders in this age group. There are sections concerned with immaturity of physical, intellectual, emotional, social and personality development. Under these headings, adolescent functioning as conceptualized by the author is discussed, together with such deviations from normal as he includes, to illustrate his views on causation and management. This is not a straightforward textbook on abnormal adolescent psychology. It is a vehicle for the expression of Dr. Kugelmass's erudition and wide ranging interests. Unfortunately, there is too much detail given on topics of relatively little relevance to the central theme of the book. Even where a lot of information is provided, such as in regard to aspects of physical growth and functioning, the useful set of references at the end of each section are not referred to in the text. This makes the book of little value as a work of reference. The arbitrary inclusion of only some psychiatric disorders makes the book useless as an authoritative textbook. The exuberance of the style can be stimulating, but is also irritating, particularly when accuracy is sacrificed to literary effect, as it only too often is. This is an expensive publication that may give food for thought to the expert but will only confuse the uninitiated.

IAN BERG

The Nottingham Number Test, W. E. C. GILLHAM and K. A. HESSE. University of London Press, London, 1973. Specimen set 50p.

THE N.R.T. is designed for use with children aged 9·1–11 yr thereby extending the authors' existing Leicester Number Test to cover the junior school age range. It is intended for the general assessment of mathematical achievement, and consists of 86 items sampling what are considered to be some of the more important numerical concepts and calculation skills involved in primary school curricula.

The test is presumably administered by the classroom teacher, usually requiring up to 55 min. Results can be expressed as quotients ($\bar{x} = 100$; $s.d. = 15$) or percentiles; separate norms are available for the two sub-tests; Number Concepts and Number Skills. Standardization was carried out on a sample of 1025 children from the Nottingham area, this being regarded as sufficiently large and demographically representative for normative purposes. The manual provides data on reliability (stability coefficients and derived estimates of standard error) and validity (obtained by correlating N.R.T. scores with teachers' estimates of numerical proficiency). Though obviously requiring rehearsal, the instructional scoring procedures are easy to follow and the format adopted for the test booklet reasonably clear.

It is likely therefore that in practice the N.R.T. will probably prove to be a useful traditional differential test. The stated aims are modest enough, although I doubt that the test can guide "the content and emphasis of an essential part of primary school mathematics". However, despite a charming evasion of most issues of validity, the amount of information in the manual falls far short of conventionally accepted standards for test presentation; and, although the authors have rightly been concerned to provide educationally relevant data, I think that in this day and age they would have been far better occupied in experimenting with a criterion-referenced approach.

J. WARD

Person Perception in Childhood and Adolescence. W. J. LIVESLEY and D. B. BROMLEY. John Wiley, London, 1973, pp. xi + 320. (No price given.)

THE TERM "person perception", though widely used, is really a misnomer. It is employed to indicate the impressions we all form of other people's motivational and emotional traits and their integration within the personality. These impressions may result initially from perception of appearance and actions, but they are based fundamentally on inferences which are formed presumably from our experiences of the manner in which people behave. Though often mistaken and sometimes conflicting, they are seldom random, but appear to be organized within coherent conceptial systems.

The authors set out to discover how these impressions are generated and organized in children, by asking children of 7–15 yr of good intelligence to write descriptions of male and female adults and children known to them, half of whom they liked and half disliked. When the statements made were analysed and classified, it was found that the youngest children were vague in their descriptions, employing terms such as "nice" and "horrible"; and they included non-psychological characteristics such as appearance, and isolated traits unrelated to each other. But from eight years upwards a substantial number of genuine psychological characteristics was mentioned. Differentiation between persons improved and trait names became more definite and precise. Abstract and inner personal characteristics were increasingly mentioned. Between 12–13 yr there was a marked improvement in the organization of statements into a systematic and meaningful pattern which took into account the interaction and sometimes the apparent conflict between traits.

At first sight it does not seem possible to decide whether any genuine improvement occurred after about 8 yr in the capacity to form realistic impressions of others, since the subjects of the descriptions were unknown to the experimenters, who were unable to judge their accuracy. Therefore improvement might have resulted merely from development in the capacity for conceptual organization, first at the stage of concrete operations, later at that of formal operations. However, the greater refinement in concepts of personality and the recognition of invariance in personality traits despite superficial incongruity and variations in behaviour, do seem to mark a genuine increase in the understanding of personality. This book provides a valuable approach to these complex problems. M. D. VERNON

Children with Learning Problems. Readings in a Developmental–Interaction Approach. Edited by SELMA G. SAPIR and ANN C. NITZBURG. Brunner/Mazel, New York, 1973, pp. xvi + 709. $15.00.

THE OBVIOUS merit of this large collection of reading is that the articles have been selected from a wide range of journals and books bringing together material which is not readily available outside large and specialized libraries. The declared purpose of the editors is to further a developmental–interaction approach to learning problems by exposing the reader to the viewpoints of experts in different disciplines. The problem of integrating the various positions is passed on to the reader almost without comment and it is disappointing that there is not even an index to facilitate cross-referencing.

A serious attempt to discuss what is meant by a developmental–interaction approach is deferred until the final paper of the book by Shapiro and Biber in which all is revealed in an exposition of the philosophy of education of young children advocated at the Bank Street College. Whilst most of us are by now either natural or converted interactionists many will find the particular blend of psychodynamic theories of personality, structuralism and cognitive maturation advocated here to be restrictive. In particular there is a neglect of behaviourism and social learning theory in almost all sections of this book.

Sapir and Nitzburg take the reasonable position that understanding normal development is a prerequisite to the understanding of learning problems. A close look at the papers included in the first section on Basic Approaches to Child Development reveals both the breadth and narrowness of their position. Where better to start than Gesell (1929) setting out his views on maturation followed by a quick leap to a very different developmental theory expounded by Anna Freud? Next comes a lengthy extract from Erikson and on to Piaget as interpreted by Tuddenham. A selection from Chomsky's views on innate processes is sufficiently short to be confusing and then comes a recent lecture by Luria on neuropsychology before we are taken back to Hebb (1955) for a discussion on the conceptual nervous system. The final paper in this section is Werner and Kaplan discussing their organismic theory.

The middle sections of the book get on to learning problems and there is a range of important papers, e.g. Pasamanick and Knobloch, Kagan, Kephart, Blank and Bridger, to name a few. There are also excursions to interesting papers, some of doubtful relevance, on aspects of normal development and a chance to read *On Aphasia* by Sigmund Freud. Numerous papers discuss the concept of minimal cerebral dysfunction.

On balance this collection is likely to be a useful acquisition for those who know their way round the area but it has all the limitations of a collection of readings in being highly selective and uneven in character.

DAVID JONES

The Child in His Family: Children at Psychiatric Risk. Edited by E. J. ANTHONY and CYRILLE KOUPERNIK. John Wiley & Sons, New York, 1974, pp. xxi + 547. £8.45.

THERE is a demand for preventive measures to be introduced into the professional practice of all who deal with children in their formative years. The public representatives who provide the resources, the administrators who are responsible for making these resources available, and the professional workers who carry these resources as practical procedures to members of the public, all need theoretical knowledge and practical experience with regard to the processes with which they are expected to deal.

Anthony and Koupernik have dealt with the theme of prevention by examining the situation of children at psychiatric risk. They have built up this book from the proceedings of two international study groups which met respectively at Bled, Yugoslavia in 1972 and in Dakar, Senegal in 1973. There were also site visits to give the conference participants an impression of local conditions.

Internationally known experts give their concept of the vulnerable child and describe their studies of genetic and constitutional factors and the part played by the obstetric experience.

Elizabeth Irvine introduces a note of caution and refers to "The risks of the register". The recognition of risk may not always do anything to diminish it. Handicapping conditions are complex in aetiology and in the subsequent family interaction, and therefore rarely respond to procedures of primary prevention which depend upon the discovery of specific aetiology. Professional intervention into problems of handicapped and disturbed children leads to unpredictable results which are not always beneficial. The parents may receive communications which can only be interpreted as blame.

The most promising areas of research appear to be those in which both the study and the practical procedures are in professional hands. Marcus describes neurological factors in children of schizophrenic parents and Minowski and Amiel-Tison discuss obstetrical factors in the genesis of damage to the C.N.S. of the child.

Conclusions regarding anti-social behaviour disturbances of childhood are more tenuous. These disorders are common in children with negligent, inadequate parents. This knowledge is little help in either prevention or treatment, seeing that the Isle of Wight studies showed the highest refusal rate of interviews in these very cases.

The final chapter contributed by Anthony deals, paradoxically, with the danger of the search for invulnerability which is reflected in the mythology of immortality. Psychological invulnerability is a modern preoccupation and it includes maternal over-protection, originally described by Levy. This is a feature of a privileged society. It is, therefore, of considerable importance that a large section of the book is devoted to studies within African culture, with its shortages of material resources and medical manpower. On the credit side, traditional patterns of child rearing are reputedly effective in forestalling emotional disorders. Changes towards urban culture, however, are associated with a high incidence of psychopathology.

Some of the contributions are tantalizingly brief, but the book provides valuable source material and is a stimulus for further reading.

J. H. KAHN

Companionship Therapy. GERALD GOODMAN. Jossey–Bass, Inc., San Francisco, 1972, pp. xvi + 298. $10.95.

IN THE USA and this country there is an increasing awareness of the gap between the need for help with personal problems and any realistic hope of meeting it completely with highly trained workers. This has stimulated interest in partial training and in the use of non-professionals. The emphasis then shifts to selection of talented or suitable people, from training. In this study the volunteers are undergraduates; the subjects 9- or 10-yr-old boys found to be moderately disturbed by screening school children in Berkeley, California. The author of this book and his colleagues used the opportunity to explore ways of developing and monitoring projects for non-professionals workers as well as studying factors in the boys and their volunteer counsellors, in relation to outcome. Readers will quickly recognize the underlying concepts as those of the Rogers "client-centred psychotherapy".

One innovation described in detail was a method of evaluating volunteers in groups using other group members' comments as well as staff observers. The desirable characteristics were thought to be warmth, empathy and genuineness. However, one major finding in the studies was that in addition to having these virtues, "companions" who were "outgoing" as opposed to "quiet" produced better results. This did not mean "extrovert" but was a complex characteristic with elements including self-confidence; capacity for self-disclosure; a view of people as complex and changeable; an ability to see similarities in themsevles to others and strong belief in the usefulness of therapy. "Quiet" candidates were felt initially to conform to the stereotype of "non-directiveness" so their lack of success came as a surprise to the observers. The subjects were matched with controls selected but not offered companionship. Participant gain over controls as measured by checklists of behaviour was not impressive but there was greater improvement in the presenting problem and in general social relationships as judged by parents. Contrary to expectations, those with the most severe disturbances benefited most from the "companionship therapy".

The book contains a wealth of detail and is likely to serve as a useful source book for planning work with volunteers and also for anyone involved in selection for training in counselling or psychotherapy. The study leaves an impression that selection, support and supervision are all essential ingredients in the use of non-professional workers.

R. S. BRITTON

Studies in the Socialization of the Severely and Profoundly Retarded. Edited by HANNA OLECHNOWICZ. (Translated by GRACE WALES SHUGAR), Nasza Ksiegarnia, Warsaw, 1973, pp. 165.

SEVERAL authors contributed to this descriptive booklet. In their various ways they state the principles on which the Day Centre with which they are concerned is run, introduce 14 children and describe the curriculum. As the blurb claims, this is a book for teachers. It neither attempts to justify its axioms, report results or design experiments. It simply tells what the contributors believe to be important and how they try to achieve their aims. It is written in a style which does not read like a translation at all, certainly not from Polish. In fact it reads a good deal better than many scientific texts from the United States whose Social and Rehabilitation Department financed the publication.

The ideas and principles which are set out in Chapter One, make one wonder whether the whole idea did not emerge from a dynamically oriented clinic not far from New York. All trace of central Europe, apart from the authors' names, has been erased. Even the children's names are anglicised.

The children's mental ages are established, between 12 months and 4 yr 4 months and their social competence estimated. Thereafter they are trained and given therapy, taught gymnastics and eurythmics according to their individual needs and helped to socialization through joint effort, identification with their peer group, with the therapist and with aspirations engendered in the course of the curriculum. The fifth chapter is devoted to the encouragement of social activity. The children are always treated like normal children of their mental age, something which requires considerable self-discipline from the teachers, no doubt. Most IQs are below 25 and the children's ages lie between 10 and 20. Ingenious use is made of mass production techniques to encourage team work (pp. 133–139). The aim of increasing a child's self respect is always kept in mind. This chapter is a useful guide to techniques both of socialization and of ego development.

The final chapter gives examples of the encouragement of the use of language in subnormals to encourage the expression of feeling and to aid thought as well as to convey information. The problem of past and future events is also dealt with. This chapter is not theoretical but it is ingenious and practical.

The book concludes with 14 colour plates of variable quality. Altogether a valuable book for teachers, but of little interest to psychologists except to emphasise the need for a more imaginative attitude to the child as a whole.

N. O'CONNOR

Raising a Hyperactive Child. MARK A. STEWART and SALLY WENDKOS OLDS. Harper & Row, New York, 1973, pp. xii + 299. £4.00.

THIS book is written primarily for the parents of hyperactive children but the authors hope that it will be helpful for anyone who has to care for and raise such children, including teachers, relatives and babysitters. The purpose of the book is to restore parents' confidence in themselves by explaining the nature of the problems presented by hyperactive children and by describing practical ways to deal with them.

To this effect the book is divided into four sections, the first dealing with the nature of the problem, the second and third concentrating on how to help the child at home and in school, respectively and the last on the manifestation of the syndrome through the various stages of life.

The book is well-written and easy to understand. Each chapter is clearly divided into sections which are well-labelled, making it a pleasure to read. The emphasis throughout is on relieving parents of guilt and increasing their understanding. I would imagine that it is successful in both respects.

Unfortunately, for British readers, much of the advice about outside help refers to American agencies, associations and special schools, and the drugs described are the American equivalent of those used in this country, thus minimising the value of these chapters. However, I hope this fact will not put off parents of hyperkinetic children from reading the book for there is much in it that will be of great help, support and comfort. I think that this book should be recommended to all such parents.

BRYAN LASK

Family Roots of School Learning and Behaviour Problems. Edited by R. FRIEDMAN. Charles C. Thomas, Springfield, Illinois, 1973, pp. xiv + 346. $14.75 Cloth, $9.50 Paper.

"FAMILY factors profoundly influence school adjustment. The family is the child's first school: early learning experience, initial contact with authority, beginning socialisation and the development of attitudes concerning education occur as the child interacts with his first teachers—his parents." So runs the introduction to this book which approaches its subject in a concise, readable and practical manner. It is divided into four parts: (1) exploring the familial factors in school maladjustment; (2) evaluating these within specific families; (3) intervening in a clinic setting and (4) within the school. In compiling the book Friedman has called upon the experience of 11 other writers, most of whom make a significant contribution with only a minimal overlap of material.

The first section commences by identifying the developmental stages of the healthy family and then isolates a great number of specific family factors conducive to school learning and behaviour problems. It is well-illustrated and equally well-referenced, setting a challenge to the educationalist inclined to dismiss family factors as being either of minor importance or hopelessly complicated and well beyond the reach of comprehension or modification.

The section on the identification of specific family factors centres upon Friedman's "structured family interview" in which he draws attention to the quality of communication within the family, the identification models of the parents, the conflicts within the family and the parents' attitudes towards achievement and conforming behaviour. The suggested interview style is somewhat stilted and rings of the eternal panacea, although it does illuminate a variety of approaches which are worthy of consideration.

The final two sections discuss in great detail a wide range of intervention methods. In places the illustrations are excessive, but the remainder makes captivating reading, especially the chapters covering working with children and parents together on educational problems and working with preschool children generally.

This is not a book which would be recommended primarily to the experienced family social worker, although the insights it gives into the family treatment of learning problems should make interesting reading. However, for the educationalist who is aware of the need to become more family orientated, this book is strongly recommended, if only for the wide range of practicable intervention approaches that are suggested.

JOHN PARRY

Language Acquisition for the Severely Retarded. L. R. KENT. Research Press, Champaign, Illinois, 1974, pp. xiii + 185. $5.95.

THE PUBLISHERS' "blurb" introduces the Language Acquisition Program as "Used by the author for over 8 yr, this extremely practical program is designed for use with no further preparation or source material." The latter claims send a chill through this reviewer's heart. Used in isolation and without a very good appreciation of the problems of language retarded children, manuals such as this could well be very dangerous. They could all too readily be applied mechanistically to no-one's advantage.

Having delivered this warning, what of the actual programme? It may well have been 8 yr in preparation, but nowhere is one presented with the rationale for its content or sequence of steps. Nor are there any data on its efficacy. Even one illustrative case would have been interesting, but in the absence of any evaluative studies the L.A.P. must take its place with all the other detailed language programmes in the literature—interesting theoretical models of unproven utility. However, this booklet at least suggests some simple practical ways of gathering data during treatment. For this, and for the ideas incorporated, it is cautiously recommended to all who are involved in teaching language to retarded children.

WILLIAM YULE

Dominique: The Analysis of an Adolescent. FRANCOISE DOLTO (Translated by IVAN KATS). Outerbridge & Lazard, New York, 1973, pp. ix + 262. $8.95.

THIS book consists of a very detailed account of a psychotherapeutic treatment extended over 16 months, 12 sessions in all, together with three essays on subjects related to and illustrated by the treatment. These include the "Psychoanalysis of Psychotics" and the "Freudian Theory of the Form of the Psyche during the Evolution of Sexuality; Neurosis and Psychosis". There is a short glossary compiled by the translator, but no index and no bibliography, which is a pity.

Dominique is believed to be a simpleton and on first impression is schizophrenic. He is totally disorientated in time and space. He can read. His rambling, disjointed talk suggests someone in delirium. It is possible, from the text, to form a very clear picture of the patient and of his personal and family history. The author gathers together in her own mind, entirely through her personal contact with family members, all the information which she regards as relevant to the treatment which she is undertaking. In the course of establishing a dialogue with the patient she relays back to him what she learns: in addition, and most essentially, she makes explicit, connections between the initially obscure communications, verbal and non-verbal, of the patient himself, and what she already knows or now surmises about his personal history. The case material affords a beautiful illustration of the role of reconstruction in analysis and of the extent to which a psychotic child's bizarre phantasies, like archaeological relics, can be understood and related to the living present by the thoroughly trained and experienced observer.

For the reader is left in no doubt that Dominique is frozen into useless postures and quite weird at the outset of treatment, whereas by the end he is functioning as a naïve, somewhat limited, but vitally integrated member of his society.

The treatment was carried out privately in a hospital out-patient setting, sessional fees being paid to the dispensary cashier's desk and not to the analyst herself. It is bound to excite the interest of many child psychotherapists and psychiatric social workers, especially those who are keen to find economical means of treating the large numbers of children who present in public health clinics. It significantly compares with Winnicott's Therapeutic Consultations in Child Psychiatry in that the author takes complete responsibility for the case and sees it through; she also demonstrates convincingly the advantages of widely spaced treatment sessions which "allow the parents a certain distance". The book may also appeal to research workers with children, whether they be psycho-analytically orientated or not, because of the methodical thoroughness with which the clinical data has been recorded.

Francoise Dolto's approach is thoroughly grounded in the Freudian tradition. For her, Instinct Theory and the Castration and Oedipus complexes are of central importance. As developed by her, theory is apt to become somewhat esoteric and the reviewer is reminded at times of modern Kleinian off-shoots. Her emphases, for example on the special importance of what parents say to their children and on biological "destiny" would seem to owe a great deal to Sartre, Lévi-Strauss, Mannoni and Lacan. Yet she makes no acknowledgement of her debt to any author except Freud, and gives no hint of how she arrives at her own theoretical conclusions. In this, the book stands in marked contrast to Marion Milner's account of a Psycho-Analytic Treatment, where the footnotes themselves give a balanced and detailed picture of how the author develops, and to whom she owes her ideas.

The translation is adequate on the whole and sometimes first-class, but ambiguities in the theory and/or translations detract from the three essays, though these contain much good sense and one splendidly succinct statement (p. 192) about the psychoanalyst's *modus operandi*. It is as an account of the successful therapeutic management of a very ill child and his mother that the book is likely to be remembered. It is in her outstanding capacity and willingness to present reality in well-timed doses, while still keeping in touch with the inner world of a psychotic child, that the author deserves to be much more widely known.

JAMES HOOD

The Growth of Competence. Edited by K. J. CONNOLLY and J. S. BRUNER. Academic Press, London, 1974, pp. xii + 327. £6.80.

THIS volume in the Developmental Sciences Trust series is the outcome of a study group on the Growth of Competence held in 1972 in collaboration with the Ciba Foundation and the Carnegie Corporation. The aim of the study group was to confront the issues involved in building a bridge between empirical research and social policy pertaining to growth and nurturance of the young. "Competence" in the title implies the application of knowledge to alter, adapt to and become effective adults in one's particular environment. To the eight papers originally presented have been added additional ones, covering topics arising from the discussions.

With the exception of a wide ranging chapter by Bruner on the Nature and Uses of Immaturity, most contributors report empirical data from their own investigations or research area and discuss their implications for development or social change. Chapters cover a very broad spectrum: a case for the feasibility and usefulness of cross-species developmental comparisons; analyses of chimpanzees' use of "English"; communication between mother and infant; the nature of skills and their hierarchical organization in higher-order functioning—and an analysis of cognitive development along similar modular lines; issues in language acquisition and development; competence in the growth of personality; the social significance of the dispersion of children in space; the development of allegiances to social institutions.

The quality of the contributions is generally high and some chapters are interestingly provocative. Some authors make a good attempt to relate data to the larger problem of individual "competence" as a social goal; it is a difficult task. To this reader the chapters of most interest are: Carey's on Cognitive Competence and Elliott and Connolly's on Hierarchical Structure in Skill Development, leading toward analyses of behaviour in terms of relations between acts and their significance to the organism.

The social, philosophical and moral issues raised in the introduction and conclusion are broad and deep—but one is aware of the gap between them and the intervening chapters. One is confused as to whom this book is addressed. It could well lead an educator or a Member of Parliament to ask new questions, which alone would be justification for the volume. Yet it is obvious that research findings do not yet suggest non-conflicting and unqualified answers. Another audience might be the social and behavioural scientist himself. One applauds the attempts of scientists to be socially sensitive. Yet in this position there is a difficulty. To illustrate: in the Preface the editors state the need for scientists' work to play a major role in shaping policy and for this to be effective, their views must be based upon rigorously-obtained scientific analysis. Yet in the final chapter they say that we cannot sit back and wait until knowledge is complete before offering to help formulate policy, because knowledge will never be complete and policies have to be made. Indeed, at least one of the established landmarks of child development referred to in two chapters, viz. fear of strangers in the second half-year of life, is not nearly so firmly based as the writers imply. The recently reported work of Rheingold and Eckerman has displaced this concept from its previous position.

While sympathetic with the aim of the meeting, this reviewer is left at the end of the book with a feeling of dissatisfaction. Social scientists in particular research areas have made an attempt, in the abstract, to relate their research preoccupations to social ones. Perhaps this should not be done in the abstract, but in relation to a particular social problem and in conjunction with policymakers and policy implementers.

GENEVIEVE C. CARPENTER

The Retarded Child and the Mother. MAUD MANNONI (Translated by A. M. SHERIDAN SMITH). Tavistock Publications, London, 1973, pp. xxvii + 242. £4.15.

THIS BOOK, originally published in Paris in 1964, is a psychoanalytic study based on the author's own practice. It is not an easy book to read for the non-analytical psychiatrist and even those with extensive experience of psycho-analytical writings may find the constant dependence on the views of Lacan detract from what the title suggests the book is about. Nine years elapsed between the publication of the French edition and the English translation and during this time there have been considerable changes in attitude, in this country at least, towards the retarded child and his family. This book, in stressing the retarded child's symptoms as a manifestation of the mother's guilt, is now out-dated in several ways.

Many ideas expressed in this book will be challenged by those now working with retarded children and their families. The author describes herself as submitting to "being licked and kissed by a dribbling child (that is by a panic-stricken child)", but many would feel that lack of control of oral musculature was a more likely explanation for the dribbling than panic. More serious is the assertion that it is always an error for the person treating the child to pass the mother on to a colleague for treatment on her own account and the subsequent suggestion that even the risk of suicide in the mother must be taken to avoid such an error.

One would agree with the author that rigid adherence to diagnostic classification and actual I.Q. figures may result in not regarding the retarded child as a person. But as was pointed out by the recent set of papers published in memory of Professor Lionel Penrose, clear, constructive scientific thought about the mentally handicapped can be combined with respect and appreciation of them as people.

This book dismisses somewhat disparagingly the advances in the psychological studies of the mentally handicapped and in the field of special education. The author also states that "the non analytic psychiatrist is usually consulted out of fear of analysis". There is no evidence presented here to support the frequently repeated assertion that "only psycho-analytical treatment could have any substantial effect on the child".

There is little to offer in the book to those who are in the front line as far as coping with mentally handicapped children and their parents. The "workshops" for parents that are springing up in different parts of the country are more hopeful, more balanced and more positive, offering more effective ways of helping the child and both his mother and father than is suggested here.

ANN GATH

Experiment, Design and Statistics in Psychology. C. ROBSON. Penguin Education, Harmondsworth, Middlesex, 1973. pp. 174. 90p.

ROBSON'S *Experiment, Design and Statistics in Psychology* is yet another introductory statistical text. There are, however, several points to recommend it. The author claims that the order chosen to introduce concepts, as well as the manner of presentation, has been tested on students. This is certainly a point to remember if you are "at sea" when selecting a book about statistics. Secondly, Robson deals with experimental design in more detail than most other books. He even has a section on how to write experimental reports in the conventional (though restricted) manner. That section would probably aid the mystified fresher. Thirdly, there are clearly set out recipes and worked examples strewn throughout the book for help when the student tries to test a hypothesis or to calculate a particular statistic.

Experiment, Design and Statistics in Psychology includes material found in most introductory statistics books. The tables are quite readable and clearly specified, especially noted is whether they are for 1- or 2-tailed alternative hypotheses. There are exceptions to the generally good presentation of tables: for the *z*-table, the user must supply signs and complements, an arduous task for many beginners. Another disadvantage of the book is that it does not include a section on analysis of variance. Although, Robson may have thought this important statistical technique would be too complex to include in 135 pages of text, he should have warned his reader how frequently they would find its use in the literature. A page or two of notes about reading analysis of variance summary tables would not have gone amiss. Another gaping hole is that Pearson's correlation coefficient is not mentioned.

On balance, the book would be ideal for the fresher during his first term, with sections on use of random number tables, numerous two-condition tests (parametric and non-parametric) and discussion of errors likely to affect experimental results. The presentation is sound statistically and psychologically, although it is only soup in the banquet of material on design and analysis of experiments. Like all introductory statistics texts, if the style suits you, it will be useful; if not, it will simply collect dust on the shelf.

C. WEIR

Developmental Medicine and Child Neurology

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dreams, children,
ego-level, agency-communion

TRUPIN, ERIC W. (1976) Correlates of ego-level and agency-communion in stage REM dreams of 11–13-year-old children. *J. Child Psychol. Psychiat.* **17,** 169–180.

Summary—Twelve male and eight female children, median age 12 yr, 7 months, slept in the laboratory on nine non-consecutive nights over a year's time. Stage REM dreams were collected. *S*s were also administered a personality measure (CPQ), an intelligence test (WISC), and an instrument to assess ego level (SCT). The study was designed to examine: (a) the relationship between waking ego level and ego level assessed in stage-REM dreams; (b) male and female dream representations of Bakan's (1966) dimensions of agency and communion; and (c) sex-role differences on the CPQ in relation to agency-communion in dreams. Ego level was found to be continuous from the waking measure (SCT) into dreams, and to be of a comparable absolute level in the two conditions. Male *S*s' dreams were rated primarily agentic, whereas females' dreams were primarily communal. Failure of CPQ scales to show strong gender differences made it difficult to test the proposition that waking sex-role differences would be stronger determinants of dream agency-communion than gender itself.

deprivation, twins,
early experience, follow-up,
foster care

KOLUCHOVA, JARMILA (1976) The further development of twins after severe and prolonged deprivation: a second report. *J. Child Psychol. Psychiat.* **17,** 181–188.

Summary—A previous (1972) report on the good development of twins after severe and prolonged deprivation is followed up, and progress over three further years is described. Intelligence is now average. No psychopathological features or eccentricities, either in behaviour or social relations, can be identified. The boys are sociable, happy and have firm emotional bonds with their foster-family; they attend a school for normal children, with good results. A case of a 10-yr-old girl with a similar background now living in the same foster-family is also described.

The psychological diagnosis of severe deprivation and its remediation are also discussed.

play, direct observation,
handicapped children

JEFFREE, DOROTHY M. and MCCONKEY, ROY (1976) An observation scheme for recording children's imaginative doll play. *J. Child Psychol. Psychiat.* **17,** 189–197.

Summary—A methodology for recording and quantifying children's imaginative doll play was evaluated with a group of 10 normal children, aged 18–42 months and a group of 9 ESNS children, aged 57–103 months. With both groups there was high inter-rater reliability and the measures used to quantify the play showed an expected positive correlation with Developmental Age. Furthermore the measures were sensitive to changes in the play brought about by different play materials and experimenter modelled doll play.

spastics, spatial discrimination,
spatio–temporal discrimination,
eye movements

JONES, BILL, THOMPSON, MURRAY and KABANOFF, BORIS (1976) Judgements of auditory position by spastic and non-handicapped children: The application of choice theory measures. *J. Child Psychol. Psychiat.* **17,** 199–204.

Summary—Techniques which separate sensitivity and response bias were used to compare spastic quadriplegic and non-handicapped children in auditory-spatial and spatio-temporal discrimination. The two groups did not differ in spatial discrimination and the spastic group were less sensitive to spatio-temporal position. Results are interpreted in terms of possible eye-movement involvement in auditory localization. We note the possible importance of separating sensitivity and bias in future studies of brain damage.

infant, social reinforcement,
social responsiveness, motor manipulation,
operant behaviour

MILLAR, W. STUART (1976) Social reinforcement of a manipulative response in six- and nine-month-old infants. *J. Child Psychol. Psychiat.* **17,** 205–212.

Summary—The acquisition of a manipulative response was examined in six- and nine-month-old infants under contingent and non-contingent maternal social stimulation. Reliable response acquisition was observed for the nine-month-old infants under contingent feedback, but not in the case of the six-month-old infants whose performance was not reliably different from non-contingent controls. A distinction is drawn between social learning paradigms which involve the social reinforcement of social responses and those which involve the social reinforcement of non-social responses. The failure of the six-month-old infants to learn a non-social response under contingent social feedback is discussed in the context of differential preparedness to appreciate contingency relations within these paradigms.

aggression, ethological methods,
fighting

NEILL, S. R. ST. J. (1976) Aggressive and non-aggressive fighting in twelve-to-thirteen year-old pre-adolescent boys. *J. Child Psychol. Psychiat.* **17,** 213–220.

Summary—Ethological observations were made of 34 boys in a secondary school playground, covering all aspects of behaviour, including fighting. Factor analyses were performed on individual samples of behaviour; the two main types of fighting were vigorous fighting, usually playful but often causing distress to the victim and playful fighting of low intensity. Fighting of the first type is rare in young boys, and it is suggested that this intermingling of rough play and aggression in older boys exposes aggression to social influences which in younger boys are confined to rough play.

eating behavior, children,
observations

MARSTON, A. R., LONDON, P. and COOPER, L. (1976) A note on the eating behavio of children varying in weight. *J. Child Psychol. Psychiat.* **17,** 221–224.

Summary—Eight pairs of six to fourteen year old children, one member obese an one non-obese (matched on age group, sex, and number of children eating together) were observed unobtrusively as they ate lunch in a school cafeteria. A pattern of eatin found in obese adults (faster rate of biting, less chewing, and more extraneous response during eating) was found in similar form in these mildly obese children. The result were discussed in terms of early onset of behavioural patterns relevant for the preventio and treatment of obesity.

ANNOUNCEMENT

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Under the sponsorship of the Departments of Pediatrics of the University of Geneva and the University of Colorado, the organizing committee invites abstracts (not over 50 words) from interested potential participants on one of the following topics:

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-3 NOV 1976

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1976 VOLUME 17 NUMBER 3 JULY

CONTENTS

Eric W. Trupin: Correlates of ego-level and agency-communion in stage REM dreams of 11–13 year old children 169

Jarmila Koluchová: The further development of twins after severe and prolonged deprivation: A second report 181

Dorothy M. Jeffree and Roy McConkey: An observation scheme for recording children's imaginative doll play 189

Bill Jones, Murray Thompson and Boris Kabanoff: Judgements of auditory position by spastic and non-handicapped children: The application of choice theory measures 199

W. Stuart Millar: Social reinforcement of a manipulative response in six- and nine-month-old infants 205

S. R. St. J. Neill: Aggressive and non-aggressive fighting in twelve-to-thirteen year old pre-adolescent boys 213

A. R. Marston, P. London and L. M. Cooper: A note on the eating behaviour of children varying in weight 221

Annotations:

Donald Barltrop: Sub-clinical lead poisoning in children 225

Roger Freeman: The deaf child: Controversy over teaching methods . 229

Critical Notice 233

Book Reviews 235

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242

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THE JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY AND ALLIED DISCIPLINES

Official Organ of the Association for Child Psychology and Psychiatry

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ANNIVERSARY NOTICE

The Association for Child Psychology and Psychiatry 1956–1976

THE EDITOR told me the Association for Child Psychology and Psychiatry is about twenty years old and asked me for an anniversary notice, because I had been involved from an early stage. With "so much to do, so little time to do it", events are not always well recorded. So to the Association's Minute book.

The Minutes of the first meeting of the *Committee* of the Association for Child Psychology and Psychiatry recorded that it was held on 7 January 1958 at the Tavistock Clinic with Dr. Miller in the Chair. The Minute book, after the third or fourth Committee meeting, has a page reporting a "Plenary Meeting" on 5 December (resumably 1957, though it is not in my appointment diary for 1957), at which Dr. Kenneth Soddy was in the Chair and 70 other persons were present. At this meeting "an Association was constituted and a Constitution put forward which, after some amendments, was adopted". A Committee was elected: Dr. Emmanuel Miller (Chairman); Dr. Kenneth Soddy (Deputy Chairman); Dr. Lois Monro (Treasurer); and Mr. H. P. Hildebrand (Secretary).

Other Committee Members were Dr. T. A. Ratcliffe, Dr. Susannah Davidson, Dr. Colin Hindley, Dr. Augusta Bonnard, Dr. Ronald MacKeith, Mrs. Yana Popper, Mrs. Elizabeth Irvine, Mrs. M. Harrington, and Miss T. Alcock. (The listing of doctors first and "the others" afterwards has, even for someone who thinks himself progressive and egalitarian, a nostalgic flavour—you know that the doctor believes in the team approach, provided he is captain.)

According to this Minute Book, the first meeting of the Association was held on 30 April 1958. There is a very up-to-date flavour about the meeting because James Robertson showed a film, "A 2 yr-old goes to hospital".

But I would like to support Dr. Lionel Hersov in his suggestion that the Association is twenty years old in 1976. The membership leaflet of the Association has a section "History of the Association":

"For a long time, many workers in this field had felt the need of an organization which would encourage the reporting of research findings and clinical experiences, springing from different disciplines and different points of view. Many people who attended the International Congress of Child Psychiatry at Toronto in 1954 were particularly struck by the lack of any body in Britain which brought together the different types of workers engaged in this field.

"A meeting was therefore held in London on 6 November, 1956 under the Chairmanship of Dr. Emmanuel Miller, which was attended by 120 people, including representatives of two regional associations already in existence in the north-west and in the south-west. Arising from this, a provisional committee was elected to draft a constitution.

"The Constitution was adopted, the Association formally brought into being, and a committee elected at a subsequent meeting under the Chairmanship of Dr. Kenneth Soddy on 5 December, 1957.

"Since that time regular scientific meetings have been held in London. In addition, formally constituted branches have been set up in various parts of the country."

I am sceptical about the date 6 November 1956, because it is not in my appointment diary for 1956.

At this stage I went to my own file on A.C.P.P. The first document is a letter from Betty Irvine, dated 3 October 1956, which is as follows:

"Dear Dr. MacKeith. Thank you so much for your letter. The project which Dr. Winnicott mentioned to you is at a fairly advanced stage. That is to say that an informal preparatory committee has been meeting at intervals over the last 18 months to discuss the possibility of establishing an Association in this country to bring together those concerned with Child Psychology and Psychiatry, and that the decision of that meeting was to set up an *ad hoc* committee representing the various professions concerned to discuss the matter more fully.

Diary No. 13
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"This committee was convened and has met a number of times; its review of the situation led to the following conclusions. Until this time the Inter-Clinic Conferences organised by the National Association for Mental Health have provided virtually the only common platform for the professions included in the child guidance team; apart from these annual events, and from meetings organised by certain regional groupings of child guidance clinics, the institutional framework within which formal communication is made on matters concerning child psychiatry has cut across the structure of the child guidance team, since such communications are usually made only within the professional group to which the speaker belongs. There would seem to be a need for some body meeting regularly (and publishing a number of the papers presented) whose main focus of interest would be the study, treatment and prevention of psychiatric illness and emotional problems in children, and whose membership would reflect the composition of the child guidance team.

"You will see that we have been planning an organisation restricted to the members of the psychiatric team—i.e. to professional groups whose members have all had at least one year's specialised training in a psychiatric clinic. We would of course regard you yourself as an eminently desirable member, and hope you will accept this letter as an invitation to attend the preliminary meeting, which will be on 22 November at 8 p.m. at 11 Chandos Street, with Dr. Emmanuel Miller in the Chair. On the other hand, you will see that it would rather alter the character of the proposed organisation to admit indiscriminately to full membership all paediatricians, irrespective of special knowledge on the psychiatric side. We should like to do everything possible to encourage a psychiatric outlook among paediatricians, without reducing the discussions to a popular level (as has sometimes happened in the past at N.A.M.H. Inter-Clinic Conferences, being the price of broadening the base unduly).

"I wonder if you could spare the time to come in and see Dr. Bowlby and myself about this, with a view to devising, if possible, some formula for getting the best of both worlds! Signed Elizabeth E. Irvine (Mrs.)."

At that time I had just gone on the Council of the British Paediatric Association but I don't think I was negotiating officially for it. Mrs. Irvine's letter shows that there was a realisation that the care of the disturbed child involved cooperation between disciplines. The Child Guidance Movement had set a basic pattern of collaboration of children's psychiatrist, psychologist and social worker. Today there is in the Association no hierarchy of professions; it is a most friendly and egalitarian body.

I think that meeting of 22 November 1956 took place and that it was the true beginning of the Association. This date appeals to me on two grounds. One is that it *is* in my appointment diary for 1956; the second is that 22 November is St. Cecilia's Day. The importance of this is that when, in 1958, the idea of an association journal was worked out in detail, we could go to W. H. Auden and cull, for the benefit of the successive Editors of the *Journal of Child Psychology and Psychiatry and Allied Disciplines*—

"Blessed Cecilia, appear in visions
To all musicians, appear and inspire:
Translated daughter, come down and startle
Composing mortals with immortal fire."

And here I want to say how much we owe to our Editors. They are since the beginning of the Journal: Emmanuel Miller, Elizabeth Irvine, Colin Hindley, Lionel Hersov, Rodney Maliphant and Michael Berger. Thanks to them and to Cecilia we have a journal not only of high reputation but one which brings money to our Association.

Another strength of our Association is the Regional Groups. At the time of the founding there were already two regional groups in existence and now there are seven. I would sum up by saying the Association has been and is a success, that this has stemmed from the good original planning, the acceptance of all professionals as equals, the strength of the Regional Groups and the high quality our Editors have achieved for our Journal.

RONALD MACKEITH.

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PLAY IN PRE-SCHOOL CENTRES—I. PLAY MEASURES AND THEIR RELATION TO AGE, SEX AND I.Q.

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INTRODUCTION

In a recent study we observed the way in which staff in 12 pre-school centres talked and behaved to the children in their charge (Tizard *et al.*, 1976). We wanted to find out whether and in what way staff behaviour was affected by the educational orientation of the centre, and by the social class of the children who attended it. As a complement to this study, we decided to assess the ways in which the children's cognitive skills were affected by these two factors, and to develop methods for assessing them outside a test situation as well as by standardised tests. Like many other psychologists, we were not satisfied that psychological testing is an adequate way of assessing children's cognitive functioning. Quite apart from the narrow range of functions tested and the unreliable estimates obtained from young children, certain aspects of the test situation, e.g. the culturally biased nature of the contents of the test, and the question and answer situation itself, may lead to an under-estimate of the working-class child's competence. Yet systematic assessments of behaviour outside a test situation are difficult to make and more often advocated than undertaken.

For young children, play is the most obvious body of spontaneous cognitive behaviour to assess. It absorbs much of their interest, is of virtually universal occurrence in the early years, and involves the deployment of both verbal and nonverbal as well as social skills. Many aspects of play appear to be related to the child's level of development, e.g. the span of his play attention, the use which he makes of materials, the extent to which he integrates different activities into one game, his ability to make an imaginative re-interpretation of objects, to sustain and develop a dramatic role, and the extent to which he can co-operate with other children to achieve a joint play purpose (cf. Bott, 1928; Buhler, 1933; Lunzer, 1958; Smilansky, 1968).

If we want to compare the play of groups of children we need to develop ways of measuring play. One approach is to define criteria which will distinguish or measure particular aspects or types of play. Manwell and Mengert (1934) for example, distinguished constructive play, in which materials are re-arranged to make a product, from manipulative play in which there is no finished product; Parten (1932) developed a scale of social participation in play; Smilansky (1968)

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stated criteria for the recognition of socio-dramatic play, and Hutt (1970) defined criteria for distinguishing exploration from play. A more ambitious undertaking is to develop a scale which will measure the cognitive level of any play activity. Barker *et al.* (1941) and Lunzer (1958) attempted to construct such scales, and it is this work which has been extended in the present study.

In this article we describe the measures which we developed, the characteristics of the play which we observed in the pre-school centres in our study, and the extent to which these measures of play were related to the age, sex and non-verbal test scores of the children. A second article concerns the ways in which the social class of the child and the educational orientation of the centre affected the child's play.

METHOD

Definition of play and non-play

The first step in any measurement of play must be to identify the behaviour which is to be assessed. However, despite the fact that even young children differentiate play from other activities with confidence (e.g. "We're not fighting, we're playing", or "I'm not playing, I'm working") there is no generally accepted or acceptable definition of play. The main difficulty lies in the enormous range of playful activities, ranging from "Peep–bo" to chess. Most theories and definitions have focussed on only part of the range. Thus many authors define play in opposition to work, as non-serious, non-goal directed activity. This is the sense in which the term is used by the children quoted above, by Garvey (1976) who stressed the "non-literalness" of play and Loizos (1967) who defined play in terms of the fragmentation, exaggeration and re-arrangement of goal-oriented sequences of behaviour. These definitions, however, appear inapplicable to such common forms of play as swinging, riding a tricycle, or filling a bucket with sand.

For others, the essential meaning of play is not that it is non-serious, but that it is autonomous activity, free from an adult's constraints, and undertaken for its intrinsic satisfaction. Definitions in this category, however, not only involve imputing motivation to the child, but appear applicable to activities not usually regarded as playful, e.g. thumbsucking.

Both types of definition leave out of account play which takes the form of games with explicit rules (e.g. singing, ball, or table games), which are often initiated and sustained by other children or by adults. Moreover, neither type of definition is applicable to hybrid "play-work" situations, which are both goal-directed and intrinsically motivated. These may, indeed, be the most satisfying of all activities for both adults and children. Thus a construction may be satisfying to make and also be intended for future use, or a task such as wiping tables may be clearly goal directed and adult directed, yet undertaken and completed by the child because it is fun.

In practice, some of these problems were minimised in our study by the fact that the pre-school centres we selected tended to encourage a particular type of play, that is, self-initiated play, unconstrained by formal rules. Both formal games and hybrid work-play situations were very rare, and constructions were always playful in the sense that they were not intended to serve any purpose beyond the satisfaction of making them. Our pragmatic solution to the problem of defining play was therefore to define categories of behaviour which would be generally accepted as *not* play, and to assume that any other apparently non goal-directed behaviour was playful.

Categories of non-play

These were (1) Goal directed activity directed to satisfying physical needs, e.g. eating, dressing (but not "dressing-up"), toileting. (2) Other goal directed activity, not supervised by an adult, where the child's main interest appeared to be in achieving the goal, not in the process of achieving it. This category included such activities as looking for objects or persons, and also any behaviour which was clearly exploratory or problem-solving, e.g. following workmen to see what they are doing, digging for worms or examining new objects. (3) Goal-directed activity done with an adult, with the aim of producing an acceptable end product, e.g. sewing, tidying. If hybrid work-play situations occurred, they were coded in one of these non-play categories. (4) Physical attacks or threats (not rough and tumble play). (5) Verbal quarrels and taunts. (6) Crying, screaming and whining. (7) Talking, except about play. Three codes of passive non-play behaviour were used. (8) Observing events and listening to conversation. (9) Listening to stories, music T.V., etc. (10) Apparently unoccupied, e.g. aimless wandering or gazing around, thumbsucking, unaccompanied by other activities.

Most of these non-play activities could turn into play activities, or vice-versa; e.g. the child might be diverted from drinking milk or mixing a cake into playing with it, or rough and tumble play could turn into a serious fight. A decision was therefore made every half minute about whether or not the child was playing.

Measures of play

The attempt to measure the cognitive aspects of play in a wide variety of settings requires the development of criteria by which behaviours as different as pouring water into a bottle and playing "mothers and fathers" can be compared. The most easily measured, universally applicable aspect of play is the duration of play episodes, but this is very variable within both age-groups and individual children, depending on such factors as the type of play material being used, the social setting, and the frequency of distractions (cf. Bott, 1928; Herring and Koch, 1930; Gutteridge, 1935; Moyer and Gilmer, 1955; Lunzer, 1958).

Barker *et al.* (1941), in an attempt to show the effect of frustration on the level of play, developed a general scale to assess the level of organisation of play activities. They argued that developmentally there is an increase both in the number and heterogeneity of the elements making up the play activity, and in the degree to which they are integrated under one purpose. In the infant, play takes the form of repetitive movements which appear aimless because they are not organised to an end. As the child grows older his behaviour becomes sufficiently organised to perform a simple task, and subsequently he is able to integrate a variety of activities under a governing purpose, or even a hierarchy of purposes. Lunzer (1958) developed a 9-point scale based both on these concepts and on Buhler's (1933) notion that during development children proceed from using play material in non-specific ways to exploiting the specific properties of each material.

In the present study, we modified and extended Lunzer's categories under two main headings, the use which children made of materials, and the complexity of their games.

1. *Use of materials*. All play was categorised into one of four categories, which did not form a scale, but were rather alternative forms of play. (1) *Play with no materials:* in which no materials were used, and which was not imaginative. The code was used most often for chasing or rough and tumble play, but occasionally more formal games such as Ring-a-Roses were seen.

2. *Symbolic play*. There was evidence that the child was treating either objects or himself as "other" than they were. (The word "symbolic" is used instead of "imaginative", because the latter word often carries normative connotations). The evidence was usually but not always, verbal, e.g. it was assumed that a child marching up and down with a stick over his shoulder was pretending to be a soldier even if he did not speak. Play with miniature replicas of objects, e.g. toy tea-sets, toy cars, and dolls, was not regarded as symbolic unless there was some other evidence of fantasy beyond the appropriate use of the toys. Thus, pushing a doll in a doll's pram was not coded as symbolic play unless there was some further evidence that the doll was being regarded as a baby or that the child was pretending to be a mother. Driving a pedal car was not coded as symbolic unless the child indicated that it was a police car, or pretended to change gears, fill it with petrol, etc. (3) *Partial play:* the material was used indiscriminately, in the sense that a wide variety of materials could have been used in a similar way, or its properties were only partially exploited but the play was not symbolic. Thus the material might be thrown, knocked over or pounded, or materials which could be used to make a construction or pattern were not so used, e.g. sand was thrown, or raked, but not moulded; bricks were knocked down or piled up, but there was no evidence of selective placement; paints and crayons were used for scribbling, without regard to colour or form; plasticine or dough was rolled out or pounded, but no definite shape was made. It also covered instances where the child made only partial use of a toy, e.g. instead of riding a bicycle he twirled the pedals. (4) *"Appropriate" play:* the properties of the material were well exploited and there was no symbolic play. For example, if the toy had wheels it was propelled; if the material could be used to make a structure or a pattern this was done.

Secondly, we assessed the *Complexity of Play Organisation,* according to the number of different activities linked in one game, and the coherence with which they were organised. Play was defined as coherently organised if the activities appeared to occur in an ordered non-random sequence; play was considered not to be coherently organised if the activities in the game could have occurred in any spatial or temporal order and were apparently linked only by a common general theme. It was assumed that this scale was linear, and each child was given an average score for each game in a 10 min period. Further details and examples of both scales are given in Tables 1 and 2.

Table 1. Use of play materials: examples of levels

	Sand	Paint	Blocks	Large trucks
"Play with no materials", e.g. chasing, rough and tumble play, Ring-a-Roses.				
"Partial"	Pokes, stirs, throws, rakes, digs, pats (no construction).	Daubs (no definite shape or pattern made).	Throws, knocks over, piles (no selective placement).	Sits in it, twiddles wheels (no use made of propelling qualities).
"Appropriate"	Digs definite hole, or ditch, fills bucket, makes sand-pie (construction made).	Paints with intent to cover piece of wood. Paints definite shapes (selective placement of paint).	Makes definite structure or pattern, without naming (selective placement of blocks).	Pushes or pulls.
"Symbolic"*	Throws sand, calls it rain. Makes sand pie, calls it jelly.	Spatters paint, calls it snow. Paints representational picture.	Piles blocks, calls it sky-scrapers. Builds 'house' and names it.	Pulls truck, calling it 'ice-cream' van.

*Symbolic play may also occur without the use of material, as when the child pretends that she is mother and rocks an imaginary baby.

Our third main measure of play was a modified and extended version of Parten's *Scale of Social Participation* (Parten, 1932). Parten's categories of *solitary, parallel,* and *associative* play were retained and given scores of 1, 2 and 3, but "onlooker" and "unoccupied" behaviour were coded as "non-play". Parten's highest category of social interaction was subdivided into four new categories. *Attempting co-operative play,* which is not taken up by the other children, was scored 4; *co-operative play with no division of labour* was scored 5; *simple co-operation with division of labour,* in which role differentiation occurs, but the role of one child is entirely passive was scored 6; *advanced co-operative play* where the roles or activities are different and of equal importance was scored 7. Examples of these codes are given in Table 3. A separate code was used for playing with the staff.

We used two measures of the duration of play sequences, the number of games which occurred in 10 min and the length of the longest game occurring in 10 min. (The definition of a game is given below, in the section headed "Scoring the Play Records"). We also noted in each half minute what materials the child was playing with, and whether he was indoors or outdoors. If the child's play was symbolic we categorised the imaginative theme into one of 25 categories, and we noted whether any of his remarks were "dramatic impersonations", that is role-talk, such as "go to sleep, baby, I have to do the ironing". We also noted each minute whether the child combined play materials in original ways, that is, brought together in his play materials which had not been placed together by the staff. If the staff "extended" the child's play by suggesting new directions or elaborations, this was also noted each minute.

Observation procedures

Two of the authors (B. T. and J. P.) made the observations; with one exception each observed

TABLE 2. COMPLEXITY OF PLAY ORGANISATION. EXAMPLES OF LEVELS

Levels	Play with miniature cars	Role playing
1. Single activities.	Pushes car along table.	Pushes pram, saying, "Quiet baby".
2. Two related activities.	Puts car on lift in toy garage, winds up lift.	Puts doll in pram, pushes pram, saying, "We're going to the park".
3. Three or four related activities; not more than two coherently related.	Pushes car into garage. Winds up empty lift. Hooks trailer on to car. Runs trailer and car down ramp.	Pushes pram, saying "We're going to the park". Pretends to pick flowers; sits down, saying "Let's sit on the bench".
4. Three or four related activities; at least three coherently related.	Hooks trailer on to car. Loads trailer with bricks, pushes into garage, unloads bricks.	Dresses doll, saying, "It's cold, you need a coat". Puts doll in pram. Puts on "mother's hat". Pushes pram, says, "Now we're going shopping".
5. At least five related activities, not more than two coherently related.	Hooks trailer on to car. Pushes to garage. Unhooks trailer. Winds up empty lift. Runs another car up ramp.	Puts on "mother's hat", says "I'm Mummy, you're baby". Takes other child by hand, says, "We're going to school". Pretends to offer "child" sweets, sits down, saying "Now we're at Aunty's".
6. At least five related activities; at least three coherently related.	Hooks trailer on to car. Loads trailer with bricks. Pushes to garage. Unloads bricks. Adds bricks to existing structure inside garage.	Says "Here's the bus, let's get on". Pretends to climb on bus. Pretends to offer money for ticket. Says, "Ting-a-ling, time to get off". Pretends to get off. Says, "Mind the step".

one instance of each type of centre. We assessed the children's play at school by the use of 10-min time samples during free play sessions, which usually lasted for 2 hr. We chose to use a 10-min sample as a compromise. A shorter period would have enabled us to make more observations of each child, or of more children, but the data would often have been difficult to interpret. Thirty minutes would have been a much better length to assess the more complex (although rare) group symbolic play, but it would have taken a very long time to collect an adequate number of observations, because of interrupted observations at milk-time, story-time, etc. We stood very close to the child being observed and wrote on a sheet marked off in $\frac{1}{2}$-min sectors what the child did and said, and what was said to him by the staff or by other children, identifying which person initiated the conversation. These observations were later coded.

We found that the children usually ignored us; on occasions when they showed awareness that they were being observed, we abandoned the observation. Ten observations each of 10-min duration were made of each child selected, whenever possible during successive half-day play periods; a fresh

TABLE 3. LEVEL OF SOCIAL PARTICIPATION IN PLAY

Level 1.	Solitary play. Child plays independently with material different from that used by children within speaking distance. He pursues his play without reference to what others are doing.
Level 2.	Parallel play. Child plays near other children using some or all of the same material as others. He does not try to influence or modify their play, and he is principally concerned with the material, not with relating to other children.
	Social play
Level 3.	Weakly organised social play. The child's play is modified by others, or he attempts to modify the play of others, but the children do not co-operate for a common purpose. Includes weakly organised games such as chasing, rough-and-tumble play, following one another around on tricycles; also borrowing, loaning, or exchanging materials, attempts to control the coming and going of children from the group, and discussions (but not quarrels) which attempt to influence play of others.
Level 4.	Attempts to produce co-operative play, i.e. levels 5, 6 or 7, but others don't co-operate in terms of the game: also use this code if impossible to decide whether roles are taken up by others after being clearly suggested by observed child.
Level 5.	Co-operative play without division of labour. Two or more children assist each other in a task which could equally well be done by one alone, such as a jig-saw puzzle—a joint painting—or both patting down a large sand-castle. Distinguished from 2 and 3 because each child does not act independently, but both try to achieve a common goal. Distinguished from 6 and 7 because two children are not necessary to carry out the play, and from 7 because both children carry out an identical task.
Level 6.	Simple co-operative play with division of labour. There is division of labour at a low level: either the children carry out identical tasks (e.g. on a see-saw, kicking a ball to each other, carrying a heavy box) or one has an active role and the other passive (e.g. one pushes another on a swing, or one child acts the role of mother and the other is assigned to be baby, and accepts the other's definition of what he has to do). Distinct from 5 in that the play could not occur without the participation of more than one child.
Level 7.	Co-operative play with role differentiation. The various children involved have active but different roles of more or less equal importance, e.g. one pulls a cart, and one pushes; one child collects crates, another stacks them; one acts father and one mother; or a game in which the players are assigned different roles is played, e.g. hide and seek or Lotto.

random order of children was drawn up each day. The children were observed in the appointed order, whatever they were doing. If they stopped play during the observation period we continued to record what they did or said.

Scoring the records

The first task in scoring the play records was to read through the 10-min record and divide it into games. This was because although each $\frac{1}{2}$-min was given a separate score, some of the scores depended on the interpretation of the whole episode. For example, it often only became clear after the passage of time whether a child was making individual sand-castles, or whether he was arranging them in a pattern to make a fort. Generally, play with one material constituted one game, and a switch to another play material constituted the start of a new game, e.g. the child might stop painting and take out a puzzle. However, in constructional and symbolic play a variety of play materials were sometimes used in the course of one game. Thus the child might fill containers with sand, put them in the toy oven, "write" invitations to a tea party, etc. a whole series of activities and materials which all constituted one game because they were linked by the symbolic theme. In the case of symbolic or constructional play, therefore, the game was terminated not by a change of materials, but by the abandonment of the dramatic or constructional theme.

In scoring the game on the Use of Materials code, a decision was first made as to whether the game was symbolic. Every ½-min of a symbolic game was usually so scored, but occasionally the child only briefly gave the game a symbolic meaning, in which case symbolic play would only be scored for that period. If the game was not symbolic, a decision was made each ½-min as to whether the child was making "Partial" or "Appropriate" use of materials, or if the play was "with no materials".

A decision was then made about the number of activities in the game and whether or not they were coherently organised, and each ½-min of the game was given the same score on the Complexity of Play Scale. The duration of the game was noted, and social participation with peers coded separately for each ½-min. Two scores of social participation were calculated for each 10-min observation, the amount of play which was solitary or parallel, and the average level of social play (levels 3–7) observed.

Selection of pre-school centres and children

The selection of the 12 centres is described more fully in Part II of this article. All were run on "free-play" lines, generously provided with a roughly equivalent amount and variety of equipment, and all had similar staff–child ratios of about 1 : 9. All catered mainly for children aged 3 and 4, in groups of 20–30, in the care of 2–3 adults. In all but one centre the nursery opened on to the garden, which the children were free to use for most of the session. Six of the twelve centres were composed predominantly of children from the professional middle-classes, and six of children from the families of manual workers. In each centre an attempt was made to select for observation 10 children, half of whom should be boys and half girls, half aged three and the other half aged four. Children who had been less than half a term at the Centre, or whose first language at home was not English, were excluded, as were two children who were considered abnormal by the teachers and ourselves because they were never observed to play. In 7 centres less than 10 children met all these criteria; in the remaining centres 10 children were selected randomly from those who did. Thus 109 children were finally included in the main sample, of whom only one was black.

Psychological testing

After our observations were completed, an independent clinical psychologist who was not part of our research team and not given information about the characteristics of the centre or the children, tested all the children observed with the Reynell Developmental Language Scales (Reynell, 1969) and the Minnesota Non-verbal Intelligence Scale. The Reynell Scales give separate scores for language comprehension and expression.

RESULTS

Inter-observer reliability of measures

In a reliability study 24 children were observed by the two observers for 10 min each, in two centres not used in the main study. The correlations between the mean scores given to each child by the two observers were as follows: partial use of materials, 0·62; appropriate use of materials, 0·73; symbolic play, 0·72; complexity of game, 0·77; score for level of social participation, 0·90; minutes spent in non-play, 0·80; number of games in 10 min 0·87; length of longest game in 10 min observation. 0·95; number of remarks to other children. 0·91; number of remarks initiated to staff 0·84; number of replies to staff, 0·70. Other variables, e.g. play with no materials and play with staff, were observed too infrequently for their reliability to be calculated. Much of the lack of agreement was due to disagreement about what happened and what was said, rather than on the coding of the event—considerably higher agreement can be obtained from written reports (cf. Lunzer, 1958).

Consistency of play behaviour

The consistency of seven measures of play (i.e. the reliability of the child as opposed to the observer) was obtained by correlating the data for the first and last five observation periods and then using the Spearman–Brown formula to get a stepped-up reliability coefficient for the 100 min of observation. The results were as follows: partial use of materials, 0·52; appropriate use of materials, 0·50; symbolic use of materials, 0·58; complexity of game, 0·57; level of social play, 0·69; amount of play which was solitary or parallel, 0·72; number of games in 10 min, 0·40.

To examine whether future researchers could manage with less than 100 min of observation, further correlations were calculated for the first and final 10 min period, first two and last two, etc. As expected, the correlations increased steadily with no sign of a plateau effect and this, together with the reliabilities obtained, suggests that 100 min should be a minimum observation period.

General description of play

The children spent about two-thirds of their free-play period playing (Table 4). When they were not playing, they were most likely to be observing or listening (28% of non-play observations) or unoccupied and apparently at a loose end (18% of non-play observations). Crying, quarrelling and fighting were very infrequent. The majority of the games observed were relatively brief, simple in structure, non-symbolic, non-social, but accompanied by talk to other children. Two-thirds or more of the play of 3-yr olds and more than half of the play of 4-yr olds was solitary or parallel play, that is the child played on his own or alongside, rather than with, other children. Associative play (scored '3' on our scale of social play), in which children played 'with' other children but without role differentiation and without modifying their behaviour to a joint purpose, e.g. following each other around on tricycles, was the next most frequent category (21% of play). Co-operative play (scored '4', '5', '6' and '7' on our scale) was observed in only 16% of all observations of play.

Whether or not the children were playing together, a great deal of conversation was recorded between them; on the average more than one remark to another child was recorded per minute. They addressed more than five times as many remarks to children as to the staff.

The average complexity of the game was low; 67% of all games involved only one activity (e.g. digging in the sand, or saying "I'm a Dalek"), and a further 20% involved only two activities (e.g. putting a doll in a pram and then pushing it round the room). In most centres there was a tendency for the more complex games to be symbolic (the overall correlation was +0·71). There were notable exceptions; in one centre groups of working-class boys had elaborate and well-organised games with trucks and blocks to which they hardly ever gave a symbolic meaning. Most games were brief; the average game of both 3- and 4-yr olds lasted less than 5 min. About 30% of all play was symbolic, but very few symbolic games involved a dramatic text (dramatic impersonation).

Certain types of play occurred very rarely. No doubt because of the profusion of play materials available, only about 3% of all play made no use of materials and was not symbolic: most of this play took the form of chasing or rough-and-tumble

TABLE 4. CHILDREN'S BEHAVIOUR BY AGE AND SEX

	Boys 3-yr $N = 27$		Boys 4-yr $N = 30$		Girls 3-yr $N = 27$		Girls 4-yr $N = 25$	
	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
% Child is outdoors*	34·6	31·5	43·7	24·4	24·4	17·8	42·9	28·3
% Non-play	38·3	9·5	32·1	8·5	36·3	9·7	37·2	9·2
% Play which is:								
"Partial"	33·5	12·2	22·7	10·6	28·5	14·9	21·9	11·7
"Appropriate"	41·2	17·4	36·5	12·7	40·9	14·1	45·6	17·9
"Symbolic"	22·4	16·9	36·5	16·1	27·4	20·5	29·6	17·3
"Play with no materials"	2·8	2·9	4·2	4·6	3·1	3·8	2·9	2·9
"Solitary or parallel"	73·8	13·2	52·2	17·1	63·8	20·6	61·6	15·3
% Play which is with the staff	2·3	4·3	1·2	2·2	1·8	2·8	3·0	4·6
Mean score for complexity of game	1·4	0·4	1·7	0·5	1·6	0·5	1·7	0·5
Mean level of Social play	3·3	0·7	4·0	0·5	4·3	1·1	4·2	0·9
Mean no. of games in 10 min	2·6	0·9	2·6	0·5	2·3	0·6	2·4	0·6
In 100 min observation:								
Mean occasions child fights	2·1	3·8	2·5	3·0	1·6	2·0	1·0	1·7
Mean occasions child cries	0·5	1·3	0·2	0·8	0·4	0·8	0·4	0·8
Mean occasions child quarrels	1·6	2·7	2·0	2·6	1·5	2·0	2·1	2·6
Mean remarks to children	90·7	59·8	145·8	48·9	97·1	57·8	124·1	62·0
Mean remarks initiated to staff	19·3	18·0	21·1	27·2	20·3	18·9	26·7	15·0
Mean remarks initiated by staff	28·9	19·7	25·8	21·7	29·5	21·6	30·7	19·3
Mean extensions to play by staff	1·8	5·4	1·4	3·3	0·9	1·8	1·7	3·2
No. of dramatic impersonations by child	1·6	4·9	3·3	4·5	6·4	11·8	6·0	9·8
No. of original combinations	9·5	10·0	11·1	9·8	2·9	4·1	4·4	6·6
% Play using:								
Fixed exercise equipment	8·4	8·3	10·3	9·2	14·5	11·6	19·9	15·3
Wheeled vehicles	10·8	13·8	15·2	15·1	6·8	8·0	2·9	4·9
Ladders, crates, large blocks, etc.	6·9	6·6	13·4	11·5	3·5	4·2	3·2	4·8
Small constructional toys, formboards	8·0	7·5	9·3	9·9	13·2	10·7	5·3	5·7
Paints, pattern making	11·1	12·2	4·7	7·2	15·4	13·0	17·0	16·5
Clay, dough, sand, water	21·2	16·1	15·8	12·0	14·1	11·9	20·5	17·9
Dolls, domestic toys	4·9	6·1	5·8	9·5	15·3	13·0	10·1	9·6
Miniature cars, garages, trains	7·5	9·9	4·8	4·6	0·9	2·2	0·7	1·4
Reynell Comprehension Score	111·3	9·6	108·0	8·5	110·1	11·7	110·0	12·1
Reynell Expression Score	110·4	9·3	108·8	9·1	107·9	9·6	107·4	8·2
Minnesota Non-verbal Score	120·0	11·8	114·9	14·1	121·2	10·5	115·9	13·6

*Excluding one centre without free outdoor access.

play. In only 2% of play observations was a member of the staff playing with the child. The most popular play materials with both boys and girls were moulding and pouring materials—wet and dry sand, water, clay and dough; next in overall popularity were fixed exercise equipment (e.g. climbing frames and swings), paints and pattern making material, and wheeled vehicles such as tricycles, trucks and scooters. Some types of play equipment were used extremely rarely; books, musical instruments, school-type and scientific equipment, tables games such as Lotto, dressing up materials for other than family roles, hospital and shop equipment, toy zoos, farms, villages, forts, circuses and puppets were each observed in use on less than 4% of play observations.

Just as most of the time the children played with certain popular play materials so the majority of their symbolic play embodied two or three imaginative themes. Forty-one per cent of all symbolic play involved domestic and family role themes ('mothers and babies', tea-parties, etc.). If the themes of driving cars or trains, and pretending to shoot or kill, are added, 60% of all symbolic play is accounted for. Many of the traditional kindergarten themes, e.g. playing at shops, hospitals, cowboys and Indians, kings, queens and fairies were very rarely, if ever seen.

Developmental aspects of play

Table 4 shows that most of the variables assessed were age-related. The younger children more often made only "partial" use of the play material, less often engaged in symbolic play, less often spoke to other children or to the staff, less often chose to play outside, and spent more time playing on their own. In addition the games of the younger boys were less complex, and their level of social play was lower. Like Lunzer (1958) we did not find a consistent relationship between age and length of games. The strongest correlations, in the sense that they were consistent for all, or almost all centres, were positive correlations between the age of the 109 children and the amount of their symbolic play (+0·3), the complexity of their games (+0·3) and the number of their remarks to other children (+0·5), and negative correlations between age and the amount of partial play (−0·5) and the amount of solitary and parallel play (+ 0·4). (These are the overall correlations for the 12 centres.)

There was, of course, a tendency for the older children to have attended the centres for a longer period of time (the correlation between age and length of attendance was +0·6). In order to see whether the differences between the play of the younger and older children could be accounted for by the length of their attendance at the centre the correlations with age were repeated, partialling out length of attendance. The positive correlation between age and the amount of symbolic play and the negative correlation between age and the amount of solitary and parallel play remained the same; the other correlations diminished (−0·4 with partial play, +0·2 with complexity of games, +0·3 with talk to other children) but remained significantly greater than zero.

Sex differences in play

Table 4 lists the measures of play separately for boys and girls. The statistical analysis of sex differences is described in the second part of the article, where it is shown that the main sex effect was significant ($p < 0{\cdot}001$) and that the most important contributors to it were sex differences in the choice of play material, followed by a higher level of social play in girls. In both social classes girls spent considerably more time than boys playing with fixed physical equipment such as climbing frames and swings, whilst boys more often played with wheeled vehicles, and larger outdoor constructional material such as crates, tyres and ladders. Boys also played more often with miniature cars and garages than girls, and less often with miniature domestic equipment and dolls.

Table 4 shows that there was also a general tendency for the 3-yr old boys to behave at a "younger" level than the 3-yr old girls (with less symbolic play, less complex games, fewer remarks to other children, a lower level of social play, more "partial" use of play materials and more solitary or parallel play). However, by the age of four most of these differences had disappeared or been reversed and the only marked differences were in their choice of play material and the themes of their symbolic play. The girls were much more likely to choose a domestic theme (67% of all their symbolic play) than were the boys (24%), whilst the boys were much more likely to pretend to be driving a car, train, or plane (22% of all their symbolic play) than the girls (3%). The third most frequent symbolic theme for boys, pretended fighting or killing (8% of their symbolic play) was hardly observed amongst the girls (0·5%).

Like other writers (cf. Brindley *et al.*, 1971) we found that the boys also more often engaged in real fighting than the girls, but the amount of fighting observed was small (Table 4). The girls' symbolic play more often involved them in dramatic impersonations, whilst the boys more often combined play materials in ways not set out, nor often intended, by the staff of the centre (Table 4).

Standardised test scores and aspects of play

There were no consistent correlations, in the sense that they were shown in most or all centres, between either the verbal or non-verbal standardised test scores of the children and any of our measures of play. However, there were correlations in all or most centres between some of the measures of play and the children's unstandardised test scores. The score for complexity of games correlated +0·4 with the raw scores of all three tests. The frequency of symbolic play correlated +0·4 with the raw Reynell Comprehension scores, and +0·3 with the raw Reynell Expression scores. The frequency of "partial" play correlated −0·5 with the raw scores of all three tests. (These are the overall correlations for the 12 centres.)

DISCUSSION

We set out to refine and develop measures which could be used to assess cognitive aspects of a wide range of young children's play. We hoped by this means to describe and compare the cognitive functioning of children of different age, sex, and social class, in different types of pre-school centre, without the limitations and bias of the standardised test. Our measures proved to have considerably lower between-observer and within-child reliability than most standardised tests. Much of the between-observer difference was due to disagreement about events, rather than their interpretation, and could probably have been considerably reduced by the use of film or video-tape. The technical problems of such recording in a free-flowing, outdoor situation, are, however, vast.

Despite the moderate reliabilities obtained, that the measures have some validity as indices of cognitive functioning is shown by the finding that most scores were age-related. Irrespective of length of attendance at the centre, the older children were more often involved in symbolic play, their games were more complex, and they were less likely to use play materials "partially". Like other authors, we found that the play of the older children was also more social; they talked more to other children, played on their own less often, and when they played with other children they were more often involved in co-operative, role differentiated play. The consistent correlation of three of the play measures, viz. the amount of symbolic play, the complexity of games, and the frequency of "partial play", with the children's raw test scores suggests that these aspects of play are related to the level of the children's verbal–cognitive functioning. On the other hand the amount that the children talked to and played with other children, and the level of social organisation of their play were measures related to the children's age but not to their test scores, and would thus appear to reflect the development of a rather different set of social–cognitive skills. One might therefore expect to find in nursery schools with a special language programme an associated acceleration in certain aspects of the children's play, but not in their social development. Some evidence in support of this hypothesis is reported in the second part of this article.

As measures of cognitive development then, observations of play proved considerably less reliable and more time consuming to carry out than standardised tests. Further, because play is self-initiated, it is not usually possible by observing play to see the limits of the child's capacity. With no pressure upon him, he does not work to his optimum.

Our findings suggest, in fact that in pre-school centres much play is at a rather low level; it may indeed often be the case that symbolic play and complex games occur more often in the home or the street. We found that in the pre-school centres games tended to be brief and simple; on the average, children remained with one play activity for less than five minutes; they appeared to be constantly running from one activity to another. Children of three and four are, of course, capable of considerably greater persistence, but certain factors in the free-play nursery setting probably militate against a longer attention span, notably the great range of alternative play materials present, the lack of pressure to persist by the staff, and the distraction offered by large numbers of other children. Thus, although it is often argued by educationalists that the intrinsic motivation of self-initiated play leads to the kind of serious absorption which is the best guarantor of learning, in practice other aspects of the free-play situation tend to prevent such absorption.

Secondly, most games were very simple; the kind of elaborate socio-dramatic or constructional play which involves a sequence of relatively integrated activities linked by an idea occurred very infrequently. More than two-thirds of all games observed consisted of one activity, e.g. filling a sand-bucket, swinging, or pushing a pram. In the second part of this article we will show that the games in the pre-school of children from professional families were as brief and simple as those of working-class children.

The behaviour of the staff in the pre-school centres may well be an important factor in determining the characteristics of the children's play. In only 2% of observations were the staff playing with the children. They were not passive by-standers—in an earlier study we found that in over half the observations they were talking to the children, but the conversation usually took the form of questioning the child about what he was doing, or suggesting an activity if he were unoccupied. (Tizard *et al.*, 1976). Very rarely did they become involved in his activity, or stay with him long enough to help initiate and sustain a complex game or construction.

Probably this behaviour stemmed from their belief in the importance of self-initiated play; the consequences, in terms of the child's opportunity to learn from adults, and to persist at an activity, may be considerable.

Our findings that marked sex differences in the choice of play material and imaginative themes are present by the age of three, that the play of girls matures earlier, and that boys are more original—or less inhibited—in their combination of play materials than girls, will surprise few parents. However insofar as most pre-school centres have a decidely feminine orientation, not only because of the sex and attitudes of the staff but because of the preponderance of equipment preferred by girls, this mismatch between the interests of boys and teachers may start very early. If the teacher wants to reach and interact with boys through their play interests, then she may need to involve herself more often than is usually the case with cars, garages, football and large-scale construction.

SUMMARY

The free play of 109 children aged 3–4 was observed in 12 pre-school centres, and assessed on a number of scales. Most of the play measures were found to be age-related; the major sex differences in play were in the choice of play material and fantasy theme. There were correlations between some of the play measures and the children's unstandardised verbal and non-verbal test scores. The findings are discussed in relation to pre-school educational practice.

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PLAY IN PRE-SCHOOL CENTRES—II. EFFECTS ON PLAY OF THE CHILD'S SOCIAL CLASS AND OF THE EDUCATIONAL ORIENTATION OF THE CENTRE

Barbara Tizard, Janet Philps and Ian Plewis

INTRODUCTION

In the first part of this article we described the play scales which we developed, the characteristics of play which we observed in pre-school centres, as well as sex, I.Q. and age-related differences in the play of three and four year old children. The greater maturity of the four year olds was reflected in many aspects of their play. They more often engaged in symbolic play than the younger children, less often made only "partial" use of play materials, and more often chose to play outside. Their games were more complex than those of the younger children, they talked more often to both adults and children, and they played less often on their own. In this article we describe the differences in play which we observed in pre-school centres of different educational orientation and social class composition. Specifically, we wanted to see whether the lower verbal and non-verbal test scores which we expected to find in working-class children were associated with evidence of immaturity in their play behaviour; a number of authors, e.g. Smilansky (1968), Eifermann (1971) and Rusen (1974) have reported a reduction or developmental delay in symbolic play amongst lower class children.

Whether or not a developmental delay would be found, it seemed reasonable to expect social class differences in play interests, since there is evidence of different social class socialisation practices with respect to play (cf. Bernstein and Young, 1967; Newson and Newson, 1968; Wootton, 1974). Working-class children are more often than middle-class children encouraged to play outside, to play with peers rather than on their own or with an adult, and to settle their disputes without reference to adults. If these habits are transferred to the pre-school setting, it might be expected that working-class children would more often choose to play in the garden than middle-class children, that they would less often choose play materials, such as paints and table-top toys, intended for individual or supervised play, that they would show a preference for social rather than solitary play, and that they would initiate contact with adults less often than middle-class children.

We also wanted to see whether there were differences in play between children in pre-school centres of different educational orientation. Do children in nursery schools staffed by trained teachers play at a more mature level than those in nurseries which are not staffed by teachers, and which are set up primarily to provide care for the children of working mothers? Do nursery schools which place a special emphasis on language development elicit a greater amount of talk from children, or of symbolic play, than schools without such an emphasis?

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Both of these two questions, i.e. the effect on children's play of the type of pre-school centre he attends, and of the social class of his parents, have implications for educational practice. For educational administrators, it is important to assess the effect of employing trained teachers rather than non-teaching staff in the pre-schools. For teachers, and educational theorists, it is of interest to know whether the introduction of pre-school language programmes affects the spontaneous talk and play of the children. More important, perhaps, if play is believed to be a central means of learning, the existence of social class differences in play must pose an educational problem. For example, if the free play of children from one social class tends to be restricted with respect to certain uses and types of material or types of social interaction, such children may be failing to enter important learning situations. Finally, an analysis of social-class differences in play in the pre-school should contribute to our understanding of social class influences on cognitive functioning.

METHOD

Definition, observation and measurement of play

These are described in the first part of the article.

Selection of pre-school centres and children

Three different types of pre-school centre were selected: traditional English nursery schools, staffed by trained nursery school teachers; nursery schools similarly staffed, which placed greater emphasis on language instruction and included group language work in the school's routine; and nurseries primarily intended for the care of the children of working mothers and not staffed by teachers. Further details of the centres have been published elsewhere (Tizard *et al.*, 1976). All were run on "free-play" lines, generously provided with a roughly equivalent amount and variety of equipment, and all had similar staff-child ratios of about 1 : 9, with groups of 20–30 children. All catered for children aged 3 and 4, although the nurseries also included some 2 yr olds. Four examples of each type of centre were chosen; in two the children came predominantly from the professional middle-class, in the other two from the manual working-class. In order to avoid as far as possible a "time-of-year" effect, one centre from each "cell" was observed in turn. The selection of children is described more fully in the first part of the article. In each centre an attempt was made to select for observation ten children, half of whom should be boys and half girls, half aged three and the other half four.

One hundred and nine children were finally included in the main sample, of whom only one was black (Table 1). An additional 23 working-class children attending three of the predominantly middle-class schools were also observed. This made possible a small separate comparison between children from different social class backgrounds within the centres.

Testing the children

After the observations were complete an independent clinical psychologist tested all the children observed with the Reynell Developmental Language Scales (1969) and the Minnesota non-verbal scale of Intelligence.

Design of statistical analysis

Table 1 shows that a 4-factor design was used with 3 "crossed" factors (centre type, social class, sex) and one factor (specific centre) "nested" within centre type and social class. The multivariate analysis of variance (MANOVA) statistical model seemed the most appropriate approach to the data for this design, but the sample was small relative to the number of variables measured, so the latter had to be pruned in order for the analysis to have sufficient degrees of freedom. This was done, *a priori*, by excluding variables with large numbers of categories (types of non-play, types of symbolic theme) and those where the behaviour was not observed at all in some centres, leaving a total of 22. Additionally, 2 variables, age and the Minnesota non-verbal I.Q., were taken as covariates to adjust for differences between the mean cell scores for these variables, i.e. all effects reported in the main analysis for social class, centre type and sex are independent of these differences. The use of a measure of non-verbal I.Q. as a covariate is tendentious, as it could be argued that this score might be influenced by the centre type "treatment", but in fact Table 3 shows that no such influence was found (cf. also Tizard *et al.*, 1976).

TABLE 1. NUMBER OF CHILDREN OBSERVED IN EACH CENTRE

Centre		Language programme schools		Traditional nursery schools		Nurseries without trained teachers		Totals
		1	2	1	2	1	2	
Working-class:	Boys	3	5	6	4	6	4	28
	Girls	5	1	4	5	4	5	24
Middle-class:	Boys	5	3	6	6	6	4	30
	Girls	5	6	4	4	3	5	27
	Total	33		39		37		109

Even after the reduction in the number of variables included in the statistical analysis, the numbers in the cells (Table 1) precluded a single analysis covering all four factors and a compromise was reached. First, two of the "crossed" factors, centre-type and social class, and the "nested" factor, specific centre, were examined. This showed that although the "specific centre" effect was statistically significant ($p < 0{\cdot}001$) these differences were mainly due to the materials used in play which, in turn, was related to the lack of certain materials available in one or other centre. This was not relevant to the primary focus of the study. Thus, the analysis reported below refers only to the three "crossed" factors.

To satisfy the assumptions behind the use of MANOVA, the data should have a multivariate normal distribution and variances and covariances should be equal across cells (homogeneity of dispersion). The data were transformed in an attempt to attain the first condition: the "percentage" variables with an arcsin transformation and the "count" variables with a square root transformation while the test scores were left untransformed. There are theoretical reasons for supposing these brought the data close to multivariate normality although it was not possible to test this. A Bartlett/Box test for the homogeneity of dispersion gave significant results for both the transformed and untransformed data but it has been suggested (Cooley and Lohnes, 1971) that the test is too sensitive. The design was unbalanced (non-orthogonal). This can mean the probability levels for the main effects are dependent on the order in which the effects are considered by the computer program, but a check showed that this was not the case.

RESULTS

Reliability

The inter-observer reliability of the measures and the degree of consistency of the children's play behaviour is described in the first part of this article.

Effects of social class, sex, type of centre on play

General. Table 2 shows that all these effects were highly significant.

The results of the analysis are not easy to interpret because of the importance of the first order interactions. Nevertheless, it is possible to make some statements about the main effects by considering those variables which most strongly account for the effects and their means. One of the great advantages of a multivariate approach to these data is that it enables a canonical discriminant analysis to indicate which

TABLE 2. RESULTS FROM MULTIVARIATE ANALYSIS OF VARIANCE—CENTRE TYPE *by* SOCIAL CLASS *by* SEX

Effect	*F* ratio	Prob. level	"Best discriminating" variables
Centre type	2·78	0·001	% of "appropriate play" language comprehension score
Social class	5·29	0·001	language comprehension score use of wheeled vehicles
Sex	5·67	0·001	Use of wheeled vehicles, climbing frames, ladders, crates, level of social play
Centre type/Social class	2·55	0·001	language comprehension and wheeled vehicles
Centre type/Sex	1·50	0·04	climbing frames, length of longest game, language comprehension, level of social play
Social class/Sex	1·76	0·04	% wandering around, wheeled vehicles, language comprehension
Centre type/Social class/Sex	0·96	0·55	*N/A*
Covariates	2·96	0·001	*N/A*

variables *best* separate the groups and this leads to a representation much more parsimonious than univariate methods could provide.

Social class

The score for language comprehension, despite its importance in explaining all the interaction effects, independently explains some of the social class main effect. The other variables in order of importance which contribute most to the social class main effect are the preference of working-class children for wheeled vehicles, the lower frequency of symbolic play in these children, and the higher frequency with which they made only "partial" use of the play materials. One of the largest social class differences was in the preference of working-class children for outdoor play (Table 3). (This variable could not be included in the main analysis because one centre did not have free access to the garden.)

There were no significant social class differences in the amount of "appropriate" use of play materials, the complexity or the length of the games, the amount of talk directed either to other children or to the staff, the level of social play, the amount of solitary and parallel play, the themes used in symbolic play, the frequency of dramatic impersonations, or the frequency of original combinations of material.

Sex

Sex differences in play were discussed in the first part of this article.

TABLE 3. CHILDREN'S BEHAVIOUR BY CENTRE-TYPE AND SOCIAL CLASS

	Nursery schools with language programme				Traditional nursery schools				Nurseries without teachers			
	Working-class $N = 14$		Middle-class $N = 19$		Working-class $N = 19$		Middle-class $N = 20$		Working-class $N = 19$		Middle-class $N = 18$	
	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
% Child is outdoors	53·8	22·2	24·6	14·2	56·2	22·3	26·9	24·7	41·2	29·0	12·1	14·3*
% Non-play	34·4	7·3	34·3	8·2	38·9	11·3	34·0	10·2	35·9	12·1	36·3	10·2
% of play which is												
% "Partial"	26·7	10·9	21·0	11·2	30·1	10·5	18·9	10·0	36·6	15·2	27·1	12·6
"Appropriate"	40·2	11·0	41·0	15·0	48·2	10·6	50·0	15·6	38·7	14·0	25·8	15·2
"Symbolic"	28·2	16·3	35·8	22·0	17·7	9·8	29·3	16·5	20·8	17·1	43·5	13·6
"With no materials"	4·9	4·7	2·6	4·5	3·3	3·0	1·8	2·2	3·9	3·7	3·7	3·0
Solitary or parallel	55·2	22·6	61·2	23·1	60·2	13·1	72·3	14·8	66·6	15·4	58·0	17·1
Play which is with staff	3·9	4·7	0·8	1·4	1·6	2·5	1·3	3·6	3·2	3·4	5·7	3·9
Mean score for complexity of game	1·8	0·6	1·7	0·5	1·3	0·2	1·6	0·4	1·5	0·5	1·8	0·5
Mean level of social play	4·0	1·2	4·3	0·9	4·0	0·8	3·7	0·9	3·7	0·9	3·9	0·8
Mean no. of games in 10 min	2·9	0·8	2·1	0·5	2·6	0·5	2·1	0·7	2·6	0·6	2·4	0·6
Mean length longest game in ½ min	8·7	1·8	9·6	1·4	8·1	1·9	10·0	1·7	9·1	2·3	9·4	2·2
In 100 min observation:												
Mean occasions child fights	1·8	4·6	0·7	1·0	2·1	2·2	1·7	2·7	2·5	2·9	2·4	2·9
Mean occasions child cries	0·1	0·3	0·2	0·7	0·8	1·1	0·2	0·5	0·2	0·4	0·8	1·7
Mean occasions child quarrels	2·9	2·9	1·6	2·5	1·1	1·4	2·2	3·0	0·9	1·4	2·3	2·9
Mean remarks to children	121·0	53·0	115·6	76·5	112·6	56·2	106·6	58·6	104·2	64·3	136·8	49·4
Mean remarks initiated to staff	16·8	12·2	21·8	15·1	24·1	17·1	18·4	15·7	20·9	30·5	25·0	25·3
Mean remarks initiated from staff	35·4	31·3	41·6	24·8	23·3	15·1	26·1	17·6	22·4	12·7	24·7	13·4
Mean extensions to play by staff	2·9	6·5	2·1	2·7	0·1	0·3	2·7	5·2	0·4	1·2	0·6	1·7
No. of dramatic impersonations by child	8·9	9·1	8·2	13·3	1·5	2·2	3·9	8·2	0·6	1·0	4·0	7·0
No. of original combinations	4·2	5·7	2·7	3·8	7·8	6·6	5·0	3·7	11·2	11·3	9·6	9·7
Reynell Comprehension Score	112·9	7·5	116·4	6·6	97·7	8·9	116·9	6·6	102·8	8·5	112·7	6·9
Reynell Expression Score	110·5	7·4	113·0	4·3	101·9	9·7	114·9	6·1	104·7	8·8	106·9	9·6
Minnesota Non-verbal Score	114·1	9·0	124·2	9·2	107·9	8·9	127·0	13·1	111·8	11·6	121·4	11·7
% Play using fixed exercise equipment	14·4	8·4	9·9	6·6	18·4	14·0	13·0	16·8	16·1	11·0	6·4	7·1
Wheeled vehicles	10·1	9·9	9·1	7·7	20·2	18·8	2·9	4·1	11·3	12·7	2·1	3·5
Ladders, crates, etc.	9·2	12·4	4·8	5·6	10·0	8·3	5·9	5·9	5·4	6·2	7·5	11·5
Small constructional toys	4·3	5·3	4·8	7·9	3·0	5·0	6·9	7·1	4·1	7·3	3·1	4·7
Paints and pattern making	9·0	11·5	15·0	14·4	8·0	8·8	11·3	13·3	12·0	10·4	14·6	18·6
Clay, dough, wet sand	6·8	6·8	14·8	14·8	8·2	11·2	5·9	7·1	13·1	16·1	14·1	7·8
Dry sand, water	9·3	8·5	7·5	9·3	5·0	6·3	11·3	10·6	6·6	8·3	5·3	8·1
Formboards, jig-saws	1·7	3·3	4·6	9·8	3·3	5·2	8·2	7·5	5·5	9·9	2·8	3·3
Dolls, domestic toys	13·9	10·4	7·6	10·1	9·4	11·7	7·8	11·6	4·9	5·9	11·0	11·3
Miniature cars, garages, trains	3·1	3·0	3·1	4·0	1·5	2·8	8·5	10·7	4·1	6·8	0·7	1·9

*Excluding one centre without free outdoor access.

Educational orientation of the centre

The most important variable contributing to the main centre type effect was the proportion of "appropriate" and symbolic play. For both social classes, there was most "appropriate" play in the traditional nursery schools, and least symbolic play. Contrary to expectation, once account had been taken of the lower mean age of the children in nurseries without teachers, there was no tendency for their play to be less "mature" than those of the children in charge of trained teachers. The other important difference between the children in the different types of centre was that the working-class children in schools with special language programmes had much higher language comprehension and expression scores than the other working-class children. In schools with special language programmes both middle-class and working-class children made more frequent use of dramatic impersonations. These children did not, however, talk significantly more to other children or to the staff, although the staff talked more to the children than in the other centres.

Children's behaviour indoors and outdoors

Because of the striking social class differences in preference for outdoor play, a comparison was made of the quality of play indoors and outdoors. Table 4 shows that, whilst variances are very large, there is a consistent trend for the play of the working-class children to be more mature outside. That is, indoors they more often made only "partial" rather than "appropriate" or "symbolic" use of play materials, they more often played on their own, their games were shorter and less complex, and when social play occurred it was less advanced.

TABLE 4. CHILDREN'S PLAY INDOORS AND OUTDOORS

	Working-class				Middle-class			
	Indoors (295 10-min observations)		Outdoors (171 10-min observations)		Indoors (328 10-min observations)		Outdoors (51 10-min observations)	
	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
% Play which is								
"Partial"	36·0	33·0	22·1	23·7	23·1	28·7	18·3	26·3
"Appropriate"	37·4	33·5	50·2	32·3	37·1	36·7	44·3	33·6
"Symbolic"	20·6	31·6	22·1	30·8	34·6	37·6	31·9	36·4
Solitary or parallel	69·5	31·5	52·9	34·4	65·6	35·7	56·4	34·4
Mean score for complexity of game	1·4	0·8	1·6	1·1	1·7	1·0	1·5	0·9
Mean score for social play	2·2	2·0	3·3	1·9	2·4	2·1	3·5	2·1
Length of play sequence in ½ min in 10 min	8·6	5·2	11·0	5·3	9·8	5·3	10·1	5·0
Mean remarks to children	8·9	9·7	14·3	10·5	11·1	10·6	15·1	10·3
Mean remarks initiated to staff	1·9	2·7	1·2	2·4	1·5	3·0	1·2	2·2
Mean remarks initiated from staff	3·0	5·4	1·1	2·5	2·7	3·9	2·2	4·7

Based on those 10-min observations when the child was entirely indoors or outdoors and excluding one centre without free access to garden.

There were also marked differences in verbal communication indoors and outdoors: outdoors, the children talked much more to other children, whilst staff and children addressed each other less often. Similar trends were apparent in the play of the middle-class children, but they were much less marked and consistent.

Working-class children within middle-class schools

Three of the middle-class schools in the study contained a minority of children from manual working-class families. A separate study was made of all such children who met our criteria for length of stay in the centre, and English language usage ($N = 23$). Table 5 compared their scores with those of the middle-class children in the same schools for the principle variables which differentiated the social class groups in the main sample. There was some evidence of a "brush-off" effect on the play of working-class children from attendance at a predominantly middle-class centre; the social class differences in play characteristics were similar to those found in the main study, but much less marked. The children's test scores were however, little, if any, different.

TABLE 5. WORKING-CLASS CHILDREN IN SINGLE-CLASS AND MIXED-CLASS CENTRES

	Main sample				Supplementary sample in mixed-class centres			
	Working-class $N = 52$		Middle-class $N = 57$		Working-class $N = 23$		Middle-class $N = 29$	
	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*	Mean	*s.d.*
% Child is outdoors	50·1	25·4	23·2*	19·8	33·5	23·7	25·8	21·2
% of Play which is "Partial"	31·6	13·0	22·2	11·6	23·3	11·4	18·9	11·1
"Symbolic"	21·6	14·9	35·9	18·4	24·1	15·2	33·0	19·8
% Use of wheeled vehicles	14·2	15·1	4·7	6·2	10·5	9·1	4·8	6·6
Language comprehension score	103·7	10·3	115·4	6·8	105·0	9·6	116·7	6·7
Language expression score	105·3	9·3	111·7	7·6	104·0	8·2	113·9	5·7
Minnesota non-verbal score	111·0	10·1	124·3	11·5	111·7	10·6	127·1	11·6

*Excluding one centre with no free access to garden.

DISCUSSION

Both the social class of the child, and the type of pre-school centre he attended, were found in our study to affect aspects of his play. The effects of attendance at different types of centre were unexpected. There was no support for the notion that the presence of trained teachers as such improved the quality of the children's play; once age differences had been allowed for, the games of the children in the nurseries without trained teachers were not less complex, less often imaginative, or of a briefer duration, nor was their level of social play or the frequency with which they made only "partial" use of play materials different. It was, in fact the traditional nursery schools where the children's play stood out as significantly different from play in both the nurseries without teachers and the schools with language programmes. In the traditional nursery schools there was the least amount of symbolic play, and the greatest amount of "appropriate" play, that is, play which exploits the properties of the material, and does not involve the development of a symbolic theme.

We can only speculate on the meaning of this finding. The frequency with which symbolic play occurs is probably affected by a number of variables, quite distinct from the level of the children's verbal development, e.g. the behaviour of the adults in charge and the degree of familiarity between the children. Although in all the centres children were in classes or groups of approximately the same size, three of the four traditional nursery schools (but no other centres) were in fact "open-plan" schools, so that the *de facto* group size was at least twice that of the other centres. The larger the group, the less likely are children to know each other well enough to sustain social imaginative play (cf. Smith, 1976).

Secondly, we suspect that the direction of staff activity may affect the amount of symbolic play. In the traditional nursery schools the staff directed much of their energies to providing different "creative" activities for the children to explore each day—collage-making, finger painting, leaf painting, trays of salt with containers, etc. These kinds of materials usually evoked "appropriate" play, that is, the child tried out the materials in the manner intended by the teacher, but perhaps because of their novelty, symbolic play rarely developed. By contrast, both the nursery schools with a language programme and the nurseries not staffed by teachers provided fewer of these activities, in the one case because the energy of the staff was directed into language education, and conversational exchange with the children, in the other because the staff had less educational interest and expertise.

Marked social class differences were found, in the children's play interests and the quality of their play, especially in single-class centres. Working-class children were more than twice as likely as middle-class children to play outside, particularly with wheeled vehicles, whilst middle-class children more often than working-class children chose paints and pattern-making. The predicted class difference in the use use of constructional toys, jigsaws, etc. was not found: these materials were rarely used in the centres by children of either social class. Nor did we find the expected class differences in the amount of solitary play, or in the number of verbal initiations to staff and other children. This of course does not mean that there are no social class differences in these aspects of children's behaviour, but only that they did not emerge in the pre-school setting. It may be the case, e.g. that at home middle-class children sustain longer periods of privatised play and interact more with adults than do working-class children, but that their opportunities to do so in the pre-school are reduced by the constant peer group distractions.

Social class differences in cognitive functioning were apparent by the age of three in both the children's play, and their test scores. We found that the working-class children were less often involved in symbolic play than the middle-class children, and more often made only partial use of play materials, both characteristic of the play of younger children.

These class differences were much greater indoors, and if the working-class children had only been observed indoors their play would have appeared considerably less mature. Even outdoors however, some differences remained, particularly in the frequency of symbolic play. Since, as reported in the first part of this article, we found moderate correlations between the children's unstandardised language test scores and the frequency of symbolic play, the difference may reflect the less mature language development of the working-class children. In accord with this hypothesis, we found that the working-class children in schools with a special language programme not only scored much higher on tests of language but more often engaged in dramatic symbolic play than the other working-class children.

Whilst all these findings must, of course, be regarded as highly tentative, they do suggest a number of considerations for educational practice. In the first place, we found little evidence that the presence of a trained teacher altered the quality of the children's play. On the other hand, the differing emphasis placed by staff, whatever their training, on different aspects of the pre-school environment may have affected a number of aspects of play. If play is seen as an important mode of learning, then it is important to give more explicit consideration than is usually done to the kind of learning it is designed to promote. Do we want to encourage symbolic play, because of its possible importance for the development of imaginative thinking and resourcefulness? Or is it more important to encourage exploratory play? The encouragement of one type of play may well inhibit another. Certain kinds of activity (e.g. non-social play with "creative" materials, and contact between adult and child) are more likely to occur indoors; co-operative group play between children is more likely to develop outdoors. The provision of a variety of new materials for "creative" work and exploration is likely to increase the child's sensory–motor experiences but diminish the frequency of symbolic play. The size and social class mixture of the group and the amount and quality of staff talk may also be important factors in affecting the frequency of symbolic play.

Whatever the educational orientation of the centre, marked social class differences were found in the children's play; of particular note was the strong preference of working-class children for active outdoor play, and the greater maturity of their play in the outdoor setting. The 4-yr old working-class children chose to spend 75% of their time in the garden. Not only did they generally fail to make use of the abundant constructional creative and fantasy material provided inside, but they thereby removed themselves from the educational sphere of the staff. In another study (Tizard *et al.*, 1976) we have shown that staff give less information and suggestions to the children outdoors than inside the centres; in the present analysis we showed that both staff and children address each other less often outdoors.

Insofar, then, as the free-play pre-school setting is intended to provide the working-class child with an opportunity to learn from adults and from playing with a variety of materials its success would appear to be limited. By pursuing the active group play outdoors into which he has already been socialised at home the working-class child is likely to avoid the educational intentions of the staff. It does not necessarily follow, however, that his educational needs would be best served by confining him indoors for most of the day, as happens at primary school. A better solution might be to provide a short but directed and structured educational period indoors, in the course of a day largely devoted to active play. Alternatively, the ingenuity of the staff might be directed into devising means of using outdoor activities for educational purposes.

SUMMARY

The free play of 109 children aged 3–4 was observed in 12 pre-school centres and assessed according to a number of measures, in relation to the social class of the children and the educational orientation of the centre. Both effects were highly significant. The findings are discussed in relation to pre-school educational practice.

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THE OUTCOME OF INDIVIDUAL CHILD PSYCHOTHERAPY: INCREMENTS AT FOLLOW-UP

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INTRODUCTION

As part of a general review of outcome studies of individual child psychotherapy, we have focused our attention on studies offering a comparison between assessments at the end of therapy and at follow-up periods. Our original interest in this subset of outcome studies was to differentiate factors associated with rapid and precipitous post-therapy decrement from those which evidenced some maintenance of gains at follow-up. In spite of our interest in relatively long lasting effects, we assumed, as have others (Fiske *et al.*, 1970; MacDonough and McNamara, 1973; Thorne, 1952), that assessments of outcome at follow-up would show some decline when compared with evaluations at close. The results of the survey proved contrary to our expectation. Since a substantial number of studies revealed outcome gains from the end of therapy to follow-up, we were led to the consideration of a follow-up increment phenomenon.

Following a delineation of the scope of this article, the early studies originally reviewed by Levitt (1957) are discussed and re-evaluated. Recent studies employing more stringent experimental controls are then reviewed and factors associated with increments at follow-up are examined. Finally, the substantive, theoretical, and methodological implications of the findings are discussed.

Restricting the scope of this article to studies with directly comparable end-of-therapy and follow-up data rules out a large number of follow-up studies. Some follow-up investigations do not include evaluations at the close of therapy. Others provide both end-of-therapy and follow-up data, but since different factors are assessed or different measures employed, the data from the two periods are not comparable. Only studies of children identified as emotionally disturbed or maladjusted are included within this review, while investigations of mentally retarded, delinquent, and psychotic populations fall beyond its scope. An attempt was made to limit the review to studies of children 13 yr of age or less. With the exception of one study (Miller *et al.*, 1972), which includes subjects from ages 6 to 15, the experimental studies' subjects are 13 or younger. However, the age of subjects in some of the early non-experimental studies ranges as high as 21. The types of psychotherapy

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employed in the studies include psychoanalytic, Axlinian, reflective-expressive, and other forms of traditional, non-behavioral, play and interview therapy. While relatively few studies meet the criteria outlined above, they are drawn from an extensive review of the literature of individual child psychotherapy outcome.

EARLY STUDIES

Levitt's (1957) article on the results of psychotherapy with children was the first to survey systematically and critically examine the relationship between results at the close of treatment and results at follow-up. Levitt limited his survey to studies conducted with child guidance clinic and family service agency populations. Eighteen studies with data at close were compared with 17 studies with data at follow-up. Five studies provided evaluations at both close and follow-up. Dichotomizing outcome ratings as "improved" and "unimproved", Levitt found the studies with data at close to have an average improvement percentage of 67·05, and found a percentage of 78·22 for studies with data at follow-up. The comparable percentage for two samples of untreated controls was 72·5. Levitt (1957) noted that the treated children appeared to be no better off at close than the untreated controls but that they surpassed the controls at follow-up. Instead of attributing the differences to the effects of treatment, Levitt suggested that the improvement of the treated children at follow-up was due to spontaneous remission associated with the passage of time. Nevertheless, Levitt's finding is significant since it suggested, for the first time, the possibility that the effects of child therapy may become manifest well after the conclusion of treatment.

There are, of course, serious limitations in the methodology employed in Levitt's (1957) evaluation. Most obviously the pooling of results from different studies and the comparison between two different groups of studies opens the door to unknown and uncontrolled sources of variation. An alternative procedure, which Levitt did not pursue, would have been to examine those five studies of the 27 which presented data both at close of treatment and at follow-up. This intrastudy comparison was an essential part of the strategy employed by Heinicke and Goldman (1960).

Heinicke and Goldman (1960) focused on two studies from Levitt's (1957) review of the literature which included assessment of outcome at both close and follow-up and used a defector control group. Instead of condensing the studies' outcome ratings into the improved–unimproved dichotomy employed by Levitt, Heinicke and Goldman used three categories: "successfully adjusted", "partially improved", and "no improvement". The first study considered by Heinicke and Goldman was that of Lehrman *et al.* (1949). The second study was actually a combination of two studies by Witmer (1933) and Witmer and Keller (1942). Witmer and Keller (1942) did not follow-up the subset of treatment cases rated "partially improved" at the close of therapy. Since the Witmer and Keller follow-up data were incomplete, Heinicke and Goldman combined data at close and follow-up from Witmer's 1933 investigation of a treated group with Witmer and Keller's control group data. Combining the results of the Lehrman *et al.* and the two Witmer studies, Heinicke and Goldman found that, in comparison with the treatment group at close, the treatment group at follow-up exhibited an increase in the percentage of cases judged "successfully adjusted" and a decrease in the percentage judged "partially improved". The treatment group at follow-up also demonstrated a larger percentage of "successfully adjusted" and a smaller percentage of "partially improved" cases when compared with the control group at follow-up. Consequently, it appears that Heinicke and Goldman (1960) have provided evidence for the increment at follow-up phenomenon within the context of intrastudy comparisons. Additionally their reanalysis demonstrated that if one reverts to Levitt's (1957) dichotomous rating of outcomes by combining the successfully adjusted and partially improved categories, the treatment and control groups become indistinguishable at follow-up.

Unfortunately, while the Lehrman *et al.* (1949) study is methodologically sound, the validity of the results from the combination of the Witmer (1933) and Witmer and Keller (1942) studies is highly questionable. Neither Witmer's three point ratings at close, five point ratings at follow-up nor the Witmer and Keller five point ratings are directly comparable. Nevertheless, Heinicke and Goldman's (1960) findings suggest the value of re-examining the five studies (Barbour, 1951; Cohen and Davis, 1934; Irgens, 1936; Lehrman *et al.*, 1949; Maas *et al.*, 1955) cited by Levitt (1957) which provide data both at close and follow-up. Heinicke and Goldman's analysis also suggests the wisdom of retaining the three point, rather than two point, outcome ratings.

Inspection of the study by Maas *et al.* (1955, p. 41) indicates that the data reported by Levitt (1957) as follow-up results are actually the data at close for a portion of the original sample which was followed-up at a later date. Since the follow-up data from the Maas study are not comparable with the data at close, only the data from the four remaining studies will be considered. In each of the four studies follow-up results show a substantial increase in the percentage rated "much improved", and a decrease in the percentages rated "partially improved" and "unimproved" when compared with results at close. Clearly Levitt's convention of combining the "much improved", and "partially improved" categories would have obscured some of the increment at follow-up which is apparent when the three point outcome ratings are employed. In summary, intrastudy comparisons of outcome at close and follow-up by means of three point ratings reveal strong and consistent evidence for the increment at follow-up phenomenon.

Although the early studies consistently indicate increments in outcome ratings from the close of therapy to follow-up, their methodological shortcomings prevent a clear interpretation of the results. With the exception of the investigation by Lehrman *et al.* (1949), the studies did not employ control groups. Consequently they fail to provide evidence which would determine whether the follow-up increments are the result of treatment, or, as Levitt (1957) has proposed, due to unknown factors associated with the passage of time. The Cohen and Davis (1934) amd Irgens (1936) studies have additional methodological limitations.* The duration and frequency of individual child psychotherapy are not reported in the articles. In both articles treatment with the parents is so strongly emphasized that

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*The authors have been unable to secure a copy of the original Barbour (1951) paper.

TABLE 1. THREE POINT RATINGS OF THERAPY OUTCOME FOR EARLY STUDIES OFFERING COMPARABLE DATA AT CLOSE AND FOLLOW-UP

	N	Much improved* (%)	Partially improved* (%)	Unimproved* (%)
Barbour†				
Close	814	25·4	48·9	25·7
Follow-up	705	50·8	31·9	17·3
Cohen and Davis‡				
Close	57	28·0	53·0	19·0
Follow-up	57	44·0	40·0	16·0
Irgens‡				
Close	70	17·1	68·6	14·3
Follow-up	70	30·0	61·4	8·6
Lehrman *et al.*				
Close	196	38·8	26·5	34·7
Follow-up	196	50·5	23·5	26·0

*Labelling of three point ratings follows Levitt (1957).

†Data from Levitt (1957).

‡Original five point ratings collapsed to three following Levitt (1957).

one wonders how much child therapy was actually conducted. Irgens (1936) provides numerous examples of children who had only one interview. Another major difficulty is that the authors do not discuss the methodology of outcome assessment in any detail.

STUDIES EMPLOYING EXPERIMENTAL CONTROLS

To further examine the follow-up increment phenomenon, we turn now to studies of individual child psychotherapy which provide more stringent experimental controls and offer greater methodological precision than the earlier studies discussed above.

Studies with follow-up increments

Lehrman *et al.* (1949) studied cases closed in a series of child guidance clinics during a one year period. Of the 196 children comprising the therapy group 75% had over 30 interviews and none had fewer than five interviews. The 110 children comprising the control group were selected on the basis of having had five or fewer interviews. Since the control group was predominantly composed of children withdrawn from treatment by their parents, it was essentially a "defector" control as defined by Levitt (1971).

The therapy group was evaluated at the close of therapy and at a follow-up interval one year after close. The control group children were evaluated at follow-up one year after their last clinic contact. All cases were rated as "improved", "partially improved", or "unimproved". The ratings were made by a special committee on the basis of schedules of information prepared by research personnel. The information included a wide range of behaviors, symptoms, and assessments of internal processes. The authors indicate that the information was presented to the committee in such a way that the committee was not able to determine whether a case belonged to the treatment or control group. The follow-up generally consisted of seeing both the mother and the child during a home visit, supplemented, when necessary, by office and school visits.

Results indicated that the treatment group at follow-up exhibited significantly more improvement when contrasted to the treatment group at close and the control group at follow-up. Although the data were not analyzed, inspection reveals very little difference between the treatment group at close and the control group at follow-up. Consequently the Lehrman *et al.* study provides evidence for the increment at follow-up phenomenon with the employment of a defector control group.

From 150 second and third grade children Seeman, Barry and Ellinwood (1964) selected the 16 rated lowest on adjustment by a teacher rating scale (Radke–Yarrow, 1946) and a modified version of the Tuddenham (1952) reputation test. Eight children were randomly assigned to the treatment, eight to the no-treatment condition. The experimental group received play therapy at a clinical facility on a once-a-week basis. The median number of sessions was 37. The rating scale and reputation test were administered on three occasions: before therapy, at the end of therapy, and one year after the close of therapy. At the time of follow-up evaluation the children were in different classes taught by different teachers.

Due to subject loss, data analysis was based on six children in each condition. Both adjustment indices indicated minimal changes from pretherapy to the end of therapy for both the experimental and control groups. The pretherapy to end-of-therapy difference scores did not differentiate the two groups for either measure. The therapy, or experimental, group evidenced marked increments on both measures from the end of therapy to follow-up while the control group evidenced slight decrements. Pretherapy vs follow-up and end-of-therapy vs follow-up difference scores differentiated the two groups at the 0·05 level for the reputation test. For the teachers' ratings of adjustment only the end-of-therapy vs follow-up comparison approached significance ($p < 0{\cdot}10$). In summary, the study of Seeman *et al.* (1964) provides further evidence for the increment at follow-up phenomenon.

Heinicke (1969) compared four boys receiving once-a-week psychotherapy with four boys receiving therapy four times a week. The eight boys were referred for learning disturbances associated with psychological difficulties. The children were treated from one and a half to two and a half years by psychoanalytic child therapists. Assessments were conducted at the beginning of therapy, the close of therapy, and at one and two year follow-ups. The primary outcome variables were four factor scores derived from ratings based on the Diagnostic Profile (Freud, 1962). The ratings were apparently made by the children's therapists. There were no statistically significant differences favoring the four-times-a-week group at the beginning, nor at the end of therapy. At the first follow-up evaluation the four-times-a-week group exceeded the once-a-week group on the *ego flexibility* factor and by the second follow-up exceeded the once-a-week group on *ego flexibility, level of ego integration* and *capacity for peer relations*. The same pattern of change was noted for improvement in reading and spelling as assessed by achievement tests. That is, results favoring the four-times-a-week group only emerged at the follow-up evaluations. The data suggest an increasing discrepancy between the two groups from the first to the second follow-up. Heinicke's results (1969) are particularly interesting since the increment at follow-up effect is demonstrated by contrasting a very intensively and extensively treated experimental group with a control group whose treatment is more extensive than any of the remaining experimental groups reviewed in this article.

The Lehrman *et al.* (1949), Seeman *et al.* (1964), and Heinicke (1969) studies provide evidence of follow-up increments. That is, in each case the outcome measures for the treatment group indicate improvement from the close of therapy to the follow-up periods. While outcome measures differentiate the therapy and control groups at follow-up, differences between the groups are not observed at the close of therapy. The results of the three studies suggest that the increment seen at follow-up is a treatment effect and not simply the result of temporal factors as Levitt (1957) has proposed. In contrast to the three studies reviewed above, however, other investigations reveal markedly different patterns of results.

Studies without follow-up increments

Love *et al.* (1972) investigated 91 children referred to a clinic for help with chronic social, emotional, and behavioral difficulties. Subjects were randomly assigned to one of three treatment conditions: child therapy, parent counseling, or information feedback. The child therapy condition provided a minimum of 20, and an average of 12·4 individual hours over a 12 week period. In the parent counseling condition parents typically were seen for four or five sessions receiving information, advice, and suggestions. The information feedback condition provided an average number of 8·5 sessions per family with decision making and problem solving left entirely to the family and the school.

School grades were the primary criterion. All referred children's grades had been progressively declining prior to treatment. When the children's school performance was assessed at one and three semesters following treatment, both the parent counseling and information feedback interventions had arrested the decline. However, the grades of the children in the child therapy condition continued to drop. Thus, individual child therapy in the Love *et al.* (1972) study shows a pattern of follow-up decrement, rather than increment.

Dorfman (1958) studied 17 children attending a public elementary school. The children were selected on the basis of teachers' nominations of the most maladjusted children in their classrooms. All 17 children were seen in play therapy by the author. The average number of sessions was 19 with a range of 11–33 contacts. All children except one were seen on a once-a-week basis. The major experimental control consisted of an evaluation of the 17 children over a 13 week pretherapy wait period. The measures used in assessment were an adjustment inventory and adjustment ratings from a sentence completion test. The children were assessed at pre-wait, pretherapy, end-of-therapy and follow-up. The interval between pre-wait and pretherapy was 13 weeks, between pretherapy and end-of-therapy, 28·5 weeks, and between end-of-therapy and follow-up, one to one and a half years. Only 15 of the 17 children were available for evaluation at follow-up.

Results for both adjustment indices were similar and consistent. Substantial gains in adjustment were found from pretherapy to the end of therapy. The follow-up scores were remarkably similar to the end-of-therapy scores, and differences between pre-wait and pretherapy scores were negligible. In other words, therapy gains in adjustment were found and these gains neither increased nor decreased over the close of therapy to follow-up period. The Dorfman (1958) study yields neither follow-up increment nor decrement but rather a maintenance of the gains found at the conclusion of the play therapy sessions.

Miller *et al.* (1972) solicited referrals of children with clinical level phobias. Sixty-seven children were randomly assigned to one of three conditions: (1) waiting list control, (2) reciprocal inhibition therapy and (3) play therapy. The therapy groups received 24 one-hour sessions over a three week period. All subjects were evaluated at pretherapy, the end of therapy, and at the end of a six week follow-up period. The primary outcome criterion was based on an evaluator's severity score rating of the child's target, or major, phobia. The severity score rating reflected both the intensity and extensity of the fear.

Results of the primary evaluator's ratings indicated that all groups, including the waiting list control, showed a marked reduction in severity score ratings from pretherapy to the end of therapy. No treatment nor treatment × time effects were found and the severity scores neither increased nor decreased from the close of therapy to follow-up. The authors also present a *post hoc* analysis of the data indicating that both types of therapy proved effective for the younger children in the sample when evaluated at follow-up. Unfortunately, data allowing a comparison of end-of-therapy and follow-up results for the younger group are not presented.

Hampe *et al.* (1973) provide one and two year follow-up data on the phobic children originally studied by Miller *et al.* (1972). Since, however, treatment was provided to over 50% of the waiting list control children and to some of the "treatment failures" during the follow-up years, the results of the long term follow-ups cannot be meaningfully assessed in terms of the effects of the original treatment.

Each of the three studies failing to produce increments at follow-up reveals a different pattern of results. Love *et al.*'s (1972) psychotherapy group exhibits end-of-therapy to follow-up decrements. Dorfman's (1958) psychotherapy group shows no change from the end of therapy to follow-up after achieving gains from pretherapy to end-of-therapy assessments. The psychotherapy group of Miller *et al.* (1972) demonstrates a pattern of results similar to Dorfman's, but since the same pattern was found in both the untreated control and reciprocal inhibition groups, the effects cannot be attributed to psychotherapy *per se.*

Number of sessions and follow-up increments

The only variable which clearly differentiates studies with end-of-therapy to follow-up increments from those studies which do not demonstrate the phenomenon is the average number of therapy sessions. Each of the three studies exhibiting increments at follow-up provided an average of 30 or more sessions for the psychotherapy group. The three studies which did not find follow-up increments provided average numbers of 12, 19, and 24 sessions. The study offering the smallest number of psychotherapy sessions was the only study which produced follow-up decrements

(Love *et al.,* 1972). The study providing the largest number of therapy sessions demonstrated follow-up increments when the experimental group was contrasted with a control group which was provided with more psychotherapy sessions than any of the treated groups in the remaining five studies (Heinicke, 1969). The association of the number of therapy sessions with follow-up increments is striking and suggests a causal relationship. Nevertheless, a comparison across studies does not allow experimental control over extraneous and confounded variables which could influence the results. Ideally, the number of therapy sessions should be treated as an independent variable within child psychotherapy studies.

Methodological limitations

From a practical standpoint the achievement of methodological perfection in psychotherapy outcome research is a very difficult task. Although the six studies reviewed in this section are methodologically superior to most outcome studies of child psychotherapy, they do reveal methodological limitations. There are three major areas of difficulty: (1) the assignment of subjects to conditions, (2) the control of temporal variables and (3) the control of bias in the assessment of outcome.

Subjects were randomly assigned to conditions in three of the six studies (Love *et al.,* 1972; Miller *et al.,* 1972; Seeman *et al.,* 1964). Although Heinicke (1965, 1969) does not indicate that he employed random assignment, it is clear that his two groups were carefully matched on factors presumed to be associated with a favorable response to treatment. Lehrman *et al.* (1949) employed a defector control group. While Levitt (1971) has argued that such control groups are suitable in child psychotherapy outcome research, the defector control method is clearly less satisfactory than random assignment. Dorfman's (1958) failure to include an adequate control group is an obvious methodological limitation.

Most of the studies control the various temporal intervals in a precise manner. In the Dorfman (1958) study, however, the pre-wait to pretherapy interval of 13 weeks is considerably shorter than the pretherapy to end-of-therapy and end-of-therapy to follow-up intervals. Since the pre-wait to pretherapy assessment differences serve as the sole experimental control in the Dorfman study, it is clear that time variables are not well controlled. Although it is difficult to determine with certainty, the Lehrman *et al.* (1949) study probably does not provide adequate control for temporal intervals. Both the control and treated groups were evaluated one year after close. Since the controls were defectors from offered treatment, it seems likely that at the time of follow-up the treated group would have been further removed in time from the initial clinic contact.

The most common methodological weakness in the six studies is the failure to assure that the outcome measures were administered, scored, and rated without knowlege of the subjects' group membership. The ratings of Lehrman *et al.* (1949) were conducted by a committee which was kept blind, but there is no indication that the data presented to the committee were gathered without knowledge of whether the subject was in the treated or the control group. The assessment instruments of Dorfman (1958) were scored without knowledge of whether the measures were drawn from pre-wait, pretherapy, end-of-therapy, or follow-up assessments, but examiner bias could have occurred in the administration of the instruments. Miller *et al.* (1972) originally intended to keep the primary evaluator blind, but were unable to follow through on their original plan. None of the remaining studies addresses this methodological issue. Heinicke's (1969) achievement test scores, Love *et al.*'s (1972) school grades, and Seeman *et al.*'s (1964) teacher and peer-ratings may have been obtained without knowledge of the child's group membership, but the various articles provide no certain way to make this determination.

The methodological limitations in the six studies are important ones which should be remedied in future investigations. Nevertheless, with the possible exception of Lehrman *et al.*'s (1949) apparent failure to equate temporal intervals, it seems unlikely that such limitations would have accounted for any of the *differences* between results at close and results at follow-up. Differential results at the two time periods do not appear to have been hypothesized by any of the investigators and it is not obvious why rater bias, for example, should affect follow-up, but not end-of-therapy assessments.

IMPLICATIONS

A very different impression of the efficacy of individual child psychotherapy is obtained if one considers results at follow-up rather than results at close. When results are evaluated at the close of therapy, only one of the six studies employing experimental controls provides evidence in favor of psychotherapy (Dorfman 1958). If, however, results are assessed at follow-up, four of the six studies indicate improvement in the psychotherapy group. Additionally, one of the two studies failing to demonstrate the effectiveness of psychotherapy at follow-up employed an unusually brief follow-up interval and did find positive psychotherapy effects at follow-up for a major subset of its subjects (Miller *et al.*, 1972). Differences between results at close and follow-up were particularly striking for studies employing at least a moderate number of psychotherapy sessions. While the results at follow-up must be interpreted cautiously and tentatively, they are clearly at odds with Rachman's (1971) and Levitt's (1971) contention that there have been only failures and repeated failures to demonstrate the effectiveness of child psychotherapy.

One implication of this review seems inescapable and indisputable. Investigations of the outcome of child psychotherapy require follow-up, as well as end-of-therapy, evaluations. In both the earlier and later studies the follow-up increment phenomenon is very common and the discrepancies between results at close and follow-up great. Evidence from the methodologically superior studies strongly suggests that the follow-up increments are not simply due to temporal factors as Levitt (1957) has proposed. Consequently, failures to find results favoring psychotherapy at close may simply reflect a determination to assess the treatment before it has had time to take effect. In other words, if the results of child psychotherapy continue to be evaluated only at the end of treatment, there is a high probability that a finding of no effect represents a Type II error.

How might one explain the occurrence of increments at follow-up? Such findings seem most consistent with theories which view psychotherapy as affecting central, underlying, or structural aspects of personality functioning, rather than directly altering behaviors. Under such a view personality reconstruction paves the way for the later development of behavioral adaptation. Heinicke's (1965) discussion of the effects of four-times-a-week psychotherapy illustrates a psychoanalytic version of this general point of view. The validity of this explanation could be tested by investigating whether shifts in personality measures do, in fact, lead and predict changes in other types of outcome measures. There may be a further time lag between behavioral change and outcome measures based on social reputations and scholastic achievement. Another possible explanation of the follow-up increment phenomenon is that it may be due to temporary regression associated with the termination process at the end of treatment.

SUMMARY

Outcome studies of individual child psychotherapy providing comparable assessments at the close of therapy and at follow-up are reviewed and examined. Increases in outcome status from the end of therapy to follow-up are found frequently in treated groups of children. Follow-up increments appear to be most common when psychotherapy sessions number 30 or more. Methodological strengths and weaknesses of the studies are discussed and the substantive, theoretical, and methodological implications of the findings explored. The strongest implication of the review is that evaluations of the effectiveness of individual child psychotherapy require follow-up assessments.

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THE SOCIALIZATION OF 2-YR OLD BOYS: ECOLOGICAL FINDINGS

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"*It has been said that, in its haste to step into the twentieth century and to become a respectable science, Psychology skipped the preliminary descriptive stage that other natural sciences had gone through, and so was soon losing touch with the natural phenomena*" (Tinbergen, 1963, p. 411).

The task of our time is perhaps to retrace our steps and fill in the descriptive stage in psychology even now. Seeking to explain or predict given phenomena before knowing their nature or their distribution in the natural world may, after all, be to put the cart before the horse and to invite misleading assumptions and conclusions. If this is so, ecological data are of vital interest to students of child development and it is desirable that they should be reported as a body in a coherent framework, in the first place simply as normative data and in the second, because they generate hypotheses that could be answered in further, more refined analyses. Yet such data can find only a partial and fragmentary place in papers tailored to hypothesis-testing aspects of research, such as, for instance, those written or planned in the context of the present research program, on the sequential contingencies that affect child compliance (or dependence).

Normative data on Child and Parent interactive behavior have recently begun to appear. Some are reported as necessary base data in the investigation of functional relationships, e.g. the duration of crying during the first year of life in Ainsworth *et al.* (1972), or the percentage of Child compliance and the rate of Mother commands for 2-yr olds in Minton *et al.* (1972). Patterson and his co-workers have reported the incidence of "noxious behaviors" in 3–14-yr old boys in a number of papers, e.g. Patterson and Cobb (1972). In other papers the incidence and distribution of various kinds of behavior, both of children and parents, are the main focus of concern, e.g. in Escalona (1973) and Clarke-Stewart (1973), both dealing with infants. Various accounts in the ethological tradition of very detailed behavior categories, describing the actions of nursery school children have appeared, e.g. Blurton-Jones (1972), Smith and Connolly (1972), McGrew (1972). Variations in the frequencies of behavior between different social classes or educational groups have also been reported, e.g. by Minton *et al.* (1972) and Tulkin and Kagan (1970).

The present paper is one more attempt to help fill the gap pointed out by Tinbergen. It is devoted to a normative account—as atheoretical as possible—

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of Child, Mother and Father behavior to each other in their own homes, and to an analysis of differences between groups based on Mother's education. The theoretical assumptions that inevitably entered even into the relatively atheoretical observation and coding of behavior will be discussed below. The paper is one of a series of reports on the findings of a research project that was designed to answer specific questions and hypotheses about the relation between parent child-rearing practices and children's social characteristics, as well as about the influence of genetic factors. However, this paper is keyed to the natural history phase of a study in which phenomena are described and their distribution in a specified natural setting is examined.

METHOD

Sample

The sample of the main study consisted of 46 sets of same-sex male twins (17 monozygotic and 29 dizygotic) and 44 male singletons, a total of 136 boys, all white. Mean age was 32·4 months, range 25–35 months.

Singletons were included in the sample only if they came from a two-parent family and if they had a sibling within three years of themselves in age, in order to reproduce the "twoness" of the twinship situation to some extent. They were obtained through the kind co-operation of the local Child Health Clinics. Apart from the above limitations they were selected only on the basis of parents' willingness to participate upon being asked, and of the need to match the social class distribution of the twins. The sample is therefore *not* self-selected in the sense that parents volunteered in response to an advertisement. Twins were recruited via the birth registers of the local hospitals. Very few twin parents refused to co-operate.

TABLE 1. BREAKDOWN OF SAMPLE BY SOCIAL CLASS, MOTHER'S EDUCATION AND TWINSHIP

	Social class		Mother's education Groups				
	Working class	Middle class	1	2	3	4	Total
Twins	64	28	36	30	24	2	92
Singletons	31	13	11	16	13	4	44
Total	95	41	47	46	37	6	136

Note: Mother's Education Groups: 1: Not finished high school. 2: High school graduate, or grade 11 plus a year's post-secondary training. 3: Attended college (including nurses' and teacher training). 4: College graduate.

Table 1 shows the demographic characteristics of the sample. The basis for the assignment of social class was Blishen's scale of socio-economic status (Blishen, 1967). Scale score 52 and above was counted as middle class, score 47 and below as working class. For borderline cases years of Father's education were also taken into account in deciding social class status.

It is clear from the Table that while we meticulously matched the social class distribution of twins among the singleton sample, a bias has crept in since the twin sample has turned out to be somewhat more heavily weighted with lower groups of Mother's education. (Difference not significant by chi-square.)

Vocabulary I.Q. was assessed by means of the Peabody Picture Vocabulary Test for group comparison rather than for individual prediction purposes. In view of the fluctuations in attention inevitably displayed by such young children, no reliance should be placed on the precise individual scores. The mean I.Q. overall was 86·4, S.D. 16·9, range 58 (estimated) to 135. (Children of college-educated Mothers had significantly higher I.Q.s than children of non-college attenders.) The low average I.Q. was no doubt in part due to the preponderance in the sample of twins, who in this, as in other studies (e.g. Mittler, 1970) scored lower than singletons (twins 84·4, singletons 90·7, $p < 0\cdot 05$). But in addition the low mean I.Q. may reflect the test's underestimation at these age levels. Deutsch (1969) also quotes consistently lower I.Q.s for the same children when tested on the PPVT than when tested on the Stanford–Binet.

Procedure

Figure 1 presents the outward characteristics of the observations.*

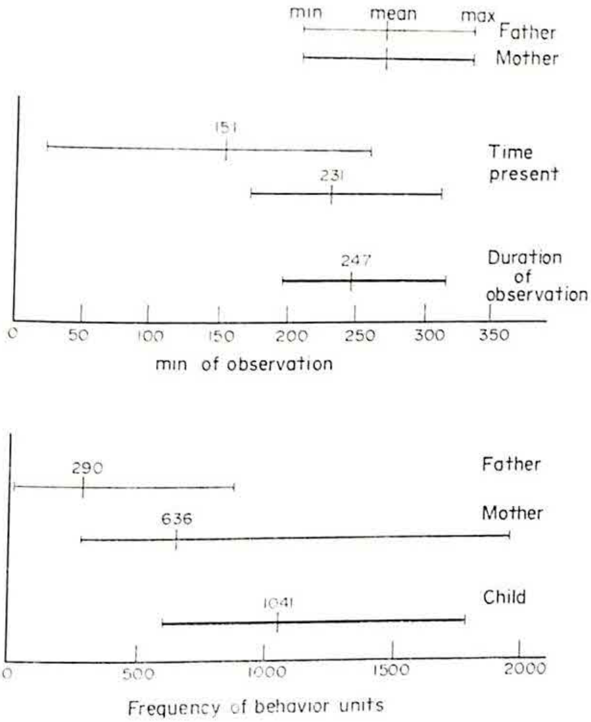

FIG. 1. Observation characteristics.

Since the method employed in the home observation and its attendant problems are discussed in detail in Lytton (1973), only a brief outline will be given here. The observer visited the home on two afternoons in successive weeks, observing completely unstructured interaction for the three hours preceding the child's bedtime. The only restriction placed on the family was that the child and at least one parent should for the most part remain in the living area. Where Father was available, we made sure that he would be present for at least part of the observation, if at all possible. We have records for the Fathers of 120 children. The behavior of the target child (or twins), as well as any behavior of others around him that impinged on him was recorded continuously by dictating the coded statements into a microphone held close to the mouth. (In the case of singletons at least one sibling was invariably present also.) The code (Parent–Child Interaction Code, PACIC) consisted of behavioral statements—each of them a 'behavior unit'—of the form: CO2M5C, meaning: Child (C) goes to (02) mother (M) quickly (5) in compliance with her request (C). Lapse of time was indicated by ten second beeps on the tape. The record was later transcribed on to data sheets for computer analysis. The average number of statements per child was 3018.

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The ecological findings reported below were extracted from the data by a computer program specially written for the purpose by Mrs. Susan Horsley. Various types of behavior by Child, Mother and Father, were summed over all observation sessions and expressed as a percentage of all actions of the agent concerned. Certain actions were also expressed as a percentage of the time that the agent was present during the observation, or as a rate per minute.

Since our social class division, based on Father's occupation, correlated significantly with only very few variables, frequencies of the various types of behavior were broken down by groups based on Mother's education and differences between groups are reported below.

Some general points should be made here. The data are cross-sectional in nature, since the families were seen twice, usually over a two-week span. They were deliberately seen twice at the same time in order to increase the trustworthiness of the data for that time of the day, although generalization to other times of the day must therefore remain in doubt. The day of the week was not necessarily the same. (More probes would ideally be desirable, but were ruled out because of cost and the extra strain on the families' hospitality.) The sample was heavily weighted with twins (approximately two-thirds). For the use of detailed direct observation it is a large sample, reasonably representative of white North American families of European origin and in this sense the data are unique, I believe. They must, of course, be interpreted within the limits set out above.

The apparent atheoretical nature of observing "behavior" as it comes is deceptive. The theoretical assumptions of the author naturally affect the selection of behavior and its coding. For example, the "theoretical" notion (derived from cognitive developmental theory) that Mother's use of reasoning may have a bearing on the Child's compliance, leads to a separate code for reasoning. The emphasis of the investigation on the reciprocal interactions between parents and children in the areas of compliance, dependence and independence similarly meant that a great deal of verbal behavior was split up into categories such as command, prohibition, suggestion, showing approval, expressing hostility, seeking attention, etc., each separately coded. On the other hand, play was broken down chiefly into manipulating smaller objects and large muscle play and no further micro-categories denoting individual muscle activities were evolved. It is this concern for the function and content of an act rather than its minute external definition that marks off the present approach from a purely ethological one. It is the function of an act that formed the criterion for a "behavior unit". Thus, "plays with toy", "seeks contact", "threatens", were all considered units, separately coded, but "gets up from chair and walks over to Mother", although comprising several distinct muscular activities was considered as a functional entity and given one code only. The incidence of various types of behavior, reported below, must be seen in the light of the main research concerns and the consequent decisions on the behavior to be selected and coded.

For a discussion of the possible effects of an observer's presence on parents' behavior, see Lytton (1973), as well as Patterson (1974) who provides further data on this question.

Inter-situational stability and inter-observer agreement

The stability of behavior over two observation sessions was assessed by calculating Spearman's rho coefficients for the relative frequencies of certain kinds of behavior between the two sessions. The figures have therefore been equalized for total number of actions by each agent. These are shown in Table 2.

The results show moderate stability of behavior over the two sessions with low stability for Child Toy Play and Father Compliance and Father Reasoning, but high stability for Child Request and Activity Shift and Mother Command–Prohibition, Suggestion and Mother–Child Speech. It is, of course, not to be expected that children and parents engage in the same behavior to exactly the same extent on two occasions, as interest in, say, Toy Play may fluctuate, or the situation may give rise to more or fewer commands. Several probes will average out some of this fluctuation and hence provide a more stable estimate of Child or Parent behavior *at the given age and specified time*. It is interesting to note that the Child's degree of restlessness (Activity Shift) and the relative frequency of his requests stays pretty stable and that Mother's frequency of Commands and her speech to the Child also show considerable stability. Father's behavior, on the other hand, shows greater variability, although it is expressed as a proportion of all his actions and therefore takes account of the variable amount of time he was present from one occasion to another. This variability may nevertheless have affected the relative emphasis given to one or the other action.

TABLE 2. INTER-SITUATION STABILITY COEFFICIENTS (SPEARMAN'S ρ)

Child (N: 136)	ρ
Emotional dependence rate	0·481
Compliance ratio	0·443
Toy play percent time	0·206
Rough and tumble play percent time	0·495
Activity shift score	0·671
Physically active behavior percent time	0·366
Requests percent	0·641
Rate of child speech	0·501
Median	0·488

Mother and Father	Mother (N: 136)	Father (N: 120)
Compliance ratio	0·452	0·214
Command-prohibition percent	0·604	0·485
Suggestion percent	0·606	0·364
Reasoning percent	0·519	0·290
Affectionate behavior percent	0·512	0·327
Rate mother (father)–child speech	0·787	0·327
Median	0·562	0·346

Note: 'Percent': Percent of all actions of given agent.
'Rate': Rate/min. $N = 120$: for $p = 0{\cdot}05$; $r = 0{\cdot}178$, for $p = 0{\cdot}01$; $r = 0{\cdot}233$.
$N = 136$: for $p = 0{\cdot}05$, $r = 0{\cdot}167$; for $p = 0{\cdot}01$, $r = 0{\cdot}219$.

Inter-observer agreement was checked by having two observers in the home, each dictating a record into a separate microphone. An agreement was counted when the same subject and predicate occurred for both observers within a 30-sec interval and all such agreements were summed for all subject–predicate pairs over 1-hr observation segments, taken from actual home observations.

When actions recorded by one observer, but not by the other were counted in with the disagreements, agreement reached 69·3% and the median of four reliability checks for the main study was 63·9%. When these actions were omitted from the calculations, i.e. agreement on the *coding* of behavior was assessed, then this agreement reached 85·6% and the median was 76·9%. Agreement between observers on the overall incidence of some types of behavior important for this research was also investigated and it was found that the two main observers (accounting for two-thirds of the observations) agreed very closely on the seven most important variables ($p = 0{\cdot}996$ for the null hypothesis of no difference between them by simultaneous confidence test). For further discussion of the problems of inter-observer agreement in a naturalistic home observation see Lytton (1973).

CHILD ACTIONS

Six categories, partly based on factor analytic studies, have been used to organize the data on child actions.

Active play and movement behavior

Figure 2 displays the percent of all actions and percent of time that the various kinds of behavior occupied. 'Rough-and-tumble play' represents gross muscle play, e.g. romping with Father or throwing a ball about, or climbing on to furniture. 'Manipulative play' was coded for playing with smaller toys and objects. The category 'Total physically active behavior' comprises the classes of behavior above

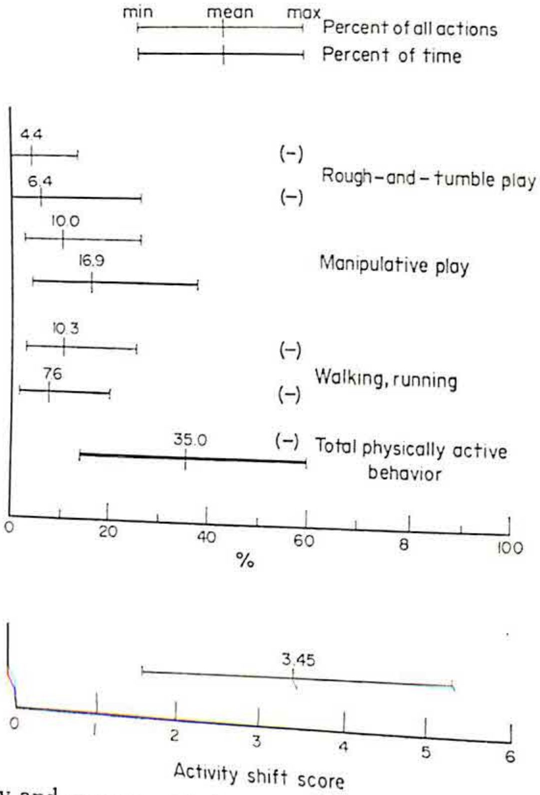

FIG. 2. Child active play and movement behavior. Note (+) or (—) by the side of the bar in this and all subsequent figures: Mean of mother's education groups 3 and 4 higher (lower) than of groups 1 and 2. $p < 0.05$.

plus a few minor ones, e.g. carrying objects, drawing. That the child should be 'active' in this sense for only 35% of the time on average may cause surprise; the larger part of his time would be accounted for by eating (mealtime was usually included in the observation), watching television, looking at books, and preparing for bed, etc.

The most frequent single activity of these 2½-yr old boys was playing with objects, either on their own or, more usually, with their siblings or parents. The proportion of all their actions taken up by manipulative play and rough-and-tumble play seems to be less than the proportion of time. This is explained by the fact that actions that continued over a longer period were counted only once for the action frequency count, whereas the whole of the duration of the activity was computed for the time calculation.

The "Activity Shift Score" was calculated by dividing the total count of 'active' behavior verbs by the time taken up by active behavior (minutes). It therefore indicates the number of times per minute that the child shifted from one activity to another and is essentially an index of the Child's restlessness. Such a shift of activity occurred on average three and a half times every minute.

Significant differences between groups based on Mother's educational level (college-attenders vs non-college attenders), calculated by independent *t*-tests, are marked on the figures. Multivariate *F*-tests between these groups will be reported below. It will be noted that children of non-college-educated Mothers were significantly more active overall than those of college-educated ones.

Speech behavior

Each utterance was scored separately and all such utterances, comprising informational speech, questions, requests, verbal seeking of attention, etc. were added together as speech acts. As can be seen, they make up a considerable proportion of the child's total activity, though other actions will have occupied more time.

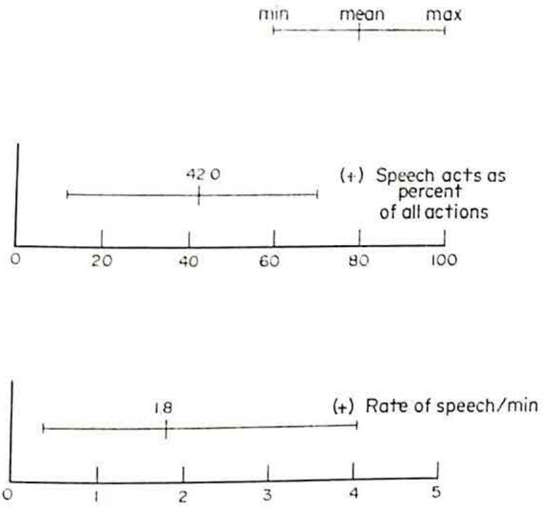

FIG. 3. Child speech behavior.

In order to establish how to assess the time that Child speech actually occupied we timed the duration of speech acts of two children in an investigation separate from the usual observation. We found that individual speech acts hardly ever lasted more than one second. The "Rate of speech per minute" can therefore be interpreted as the number of seconds per minute that children spoke. Thus, the mean rate of 1·80 works out as 3% of time. While speech acts therefore figure very prominently in the number of separate actions, the proportion of time they occupy is much smaller.

The greater amount of speech produced by children of college-educated Mothers is in sharp contrast to their lesser physical activity compared with children of non-college attenders. Since the code permitted us to record speech while other activities were in progress, this finding is not an artifact of the coding system. Correlations between speech and the various aspects of physical activity are generally negative and greater amount of speech and lesser amount of physical activity seem to be corrollaries of Mother's higher education.

Demands and compliance

The mean frequency and range of demands issued by the Child are recorded in Fig. 4 as an illustration. Frequencies of other categories of behavior can be calculated by reference to the mean numbers of behavior units (Fig. 1).

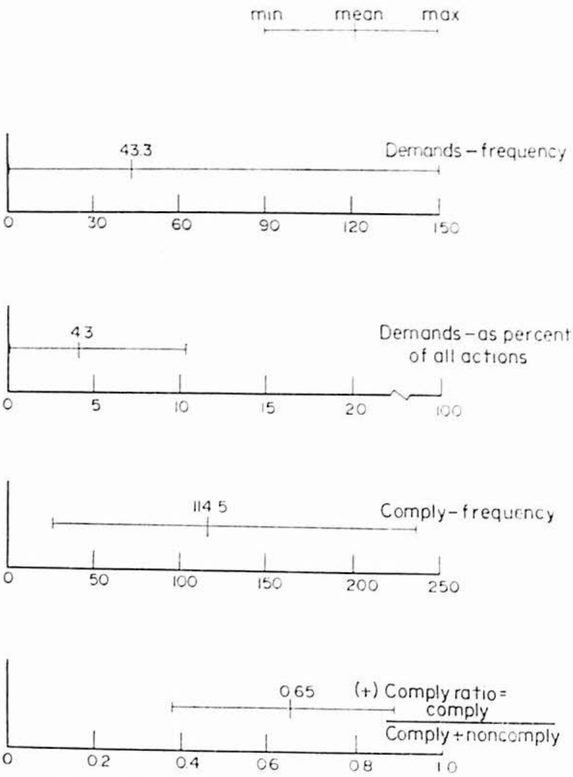

FIG. 4. Child demands and compliance.

Instances of demands and requests noted here do not include demands for attention and help which were categorized separately—see below. Children of college attenders produced slightly more demands, both absolutely and relatively, than those of non-college attenders, though the difference was not significant.

The mean Comply Ratio (= Comply/(Comply + Noncomply)) of about two-thirds does not take those instances into account when neither comply or noncomply followed a command. When these instances are considered the mean ratio of Complies drops to 0·56. Children of college-educated Mothers had a significantly higher Comply Ratio and the absolute number of their Complies was slightly higher, too (difference nearly significant).

Positively and negatively toned behavior

"Expressions of pleasure" denotes a code verb that was applied to the clear expression of positive affect, in particular to smiling and laughing (with the exception noted below). "Expression of displeasure" was similarly applied to the expression of negative affect, e.g. frowning, whining, crying. "Disruptive, disorganized behavior" refers to behavior that is especially explosive or designed to give vent to anger or rage, e.g. rolling wildly about the floor, running wildly about the room, throwing toys about.

"Positive action" is a superordinate category, established during the analysis and classifying together a number of actions which parents will generally welcome (exceptions were taken account of, as noted below): touching Mother or Father,

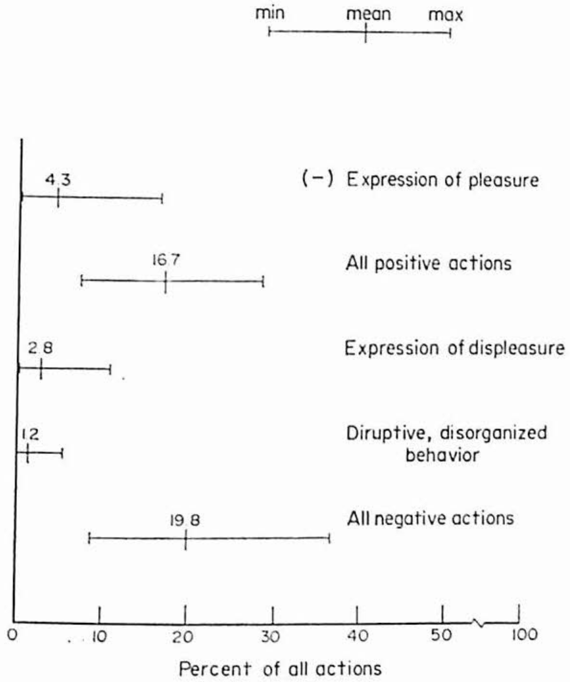

FIG. 5. Child positively and negatively toned behavior.

giving permission, showing pleasure, approving, expressing affection, helping, sitting on parent's knee, stroking or hugging and kissing, playing with parent, offering, any playful activity, and compliance with commands or requests.

"Negative action" is a similar superordinate category of types of behavior which parents will generally find aversive: any Child action which was immediately followed by a parent prohibition was empirically identified as "Negative action", even if it might otherwise have been classified as "Positive action". This occurred fairly frequently in the case of laughing, something which we learned to recognize as "naughty laughter". Actions classified *a priori* under this category are: ignoring, yelling, refusing, showing displeasure, criticizing, expressing hostility, interfering or restricting, resisting, threatening, hitting, disorganized behavior and non-compliance.

"Expression of pleasure" occurred, on average, more frequently than "Expression of displeasure". However, the average incidence of all "Negative actions" was higher than of all "Positive actions". The fact is that a great many actions of $2\frac{1}{2}$-yr old boys in the home seem at least slightly objectionable to parents and therefore worthy of correction. Many of these actions are outward manifestations of impulses that are indeed not in harmony with the requirements of group living and which the child will eventually learn to moderate, or are expressions of momentary unpleasant feelings. An analysis of the consequences and antecedents of such Child Positive and Negative actions is in progress.

Children of college-educated Mothers expressed pleasure less frequently, as noted in the Figure. In addition, they expressed displeasure less and engaged in slightly fewer negative actions (differences not significant). They seemed to give vent to emotion and impulses somewhat less readily all round. In view of the absence of significant differences for "Negative action" (which to a large extent consists of behavior prohibited by Mother) we can *not* state that less educated Mothers object to a greater number of their children's actions.

Seeking closeness with parents

Under this heading I have grouped all aspects of the child's attempts to be close to Mother and Father, both physically, and psychologically. If one wants to give them a more generally recognized label there is semantic justification for calling these kinds of behavior "attachment behavior". Empirically, too, all these actions directed to Father cluster together on two factors. Each category in Fig. 6 (except the last) represents a code verb and they are self-explanatory. The action that shows relatively the highest incidence is "Approaching Parents", but at the same time it is psychologically the least significant. The absence of any significant differences in line with Mother's Education is an interesting fact in itself. Children of college attenders tended to produce slightly more verbal behavior (seeking attention and help), however, but they sat on Father's lap less than did children of non-college attenders (difference nearly significant).

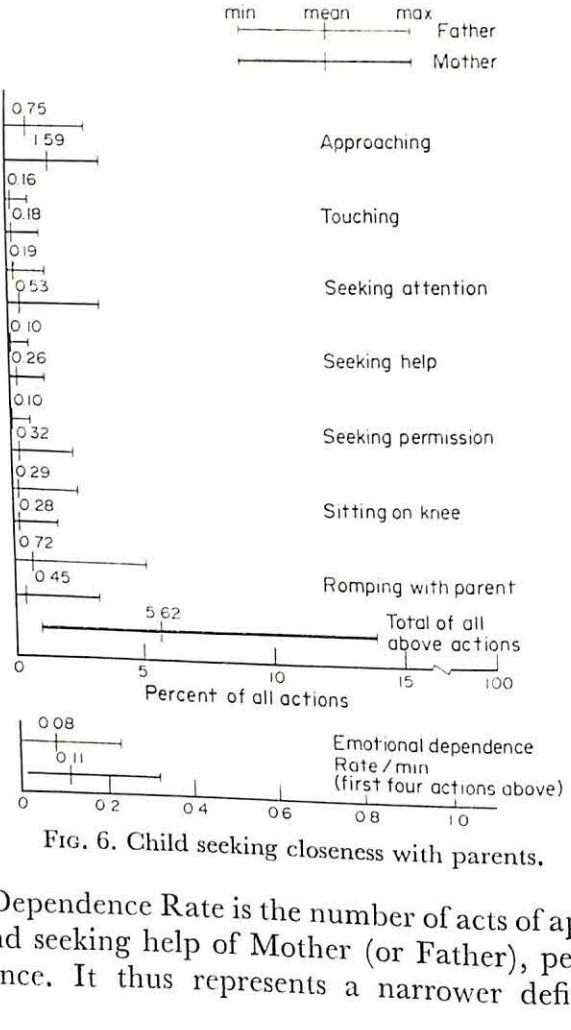

FIG. 6. Child seeking closeness with parents.

The Emotional Dependence Rate is the number of acts of approaching, touching, seeking attention and seeking help of Mother (or Father), per minute of Mother's (or Father's) presence. It thus represents a narrower definition of attachment behavior. Even when Mother's longer presence has been allowed for, she is the more important object of this behavior—the difference is significant at the 0·001 level (two-tailed *t*-test). In view of Father's lesser availability it is all the more striking that the Child engages in more rough-and-tumble play with him than with Mother. It might be thought that this is the result of Father being sex-typed for romping, but the fact that the count of paternal affectionate behavior is higher than of maternal affectionate behavior (Fig. 9) argues against this interpretation. The greater amount of rough-and-tumble play with Father is very likely due to Father, having just returned from work, making before and after supper his play-time with the children, when Mother, after the whole day with them, retires gratefully to the background. Even so, the Child seeks closeness with her on the whole more than with Father.

MOTHER AND FATHER ACTIONS

Speech behavior

Speech acts by Mother and Father addressed to the Child were added together in the same way as Child Speech acts. The "Rate Mother-to-Child Speech" shown in Fig. 7 represents the rate of this speech per minute of Mother's presence. "Rate Mother–Child Interchange" is the sum of the rate of Mother-to-Child Speech and of Child-to-Mother Speech. The Father measures are analogous. It is clear that Mother tended to speak more to the child than Father did, even allowing for differences in time present.

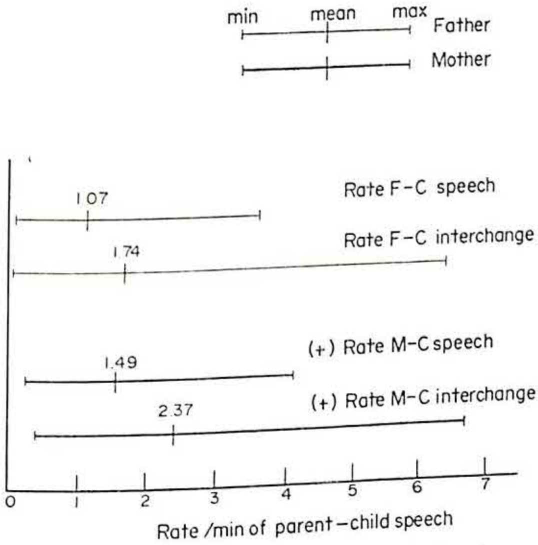

FIG. 7. Mother and father speech behavior.

Mother's and Father's speech to other members of the family was not recorded systematically, as it did not necessarily impinge on the target child and hence an overall percentage of Mother's and Father's speech out of all their actions is not available.

College-educated Mothers talked significantly more to their children than did non-college-educated Mothers and differences for Fathers were in the same direction, but did not reach significance. At the other end of this interchange the children of college-educated Mothers also produced a greater amount of speech all round (cf. Fig. 3), no distinction being made between self-initiated and responsive speech. While the direction of causality is thus ambiguous, the differences noted justify at least the conclusion that speech is an important part of the reciprocity system of mutual stimulation between parents and children. It is clear that families in the higher education group—Mothers, Fathers and Children—make greater use of verbal interaction than do families in the lower education group.

Control behavior and compliance

Attempts by Parents to control or change the Child's behavior verbally were coded in four different ways: (1) a command, which is a direct imperative, though it may be softened by a 'please'; (2) a prohibition, distinguished from the command simply by the negative form of wording: "Don't be so rough!" rather than "Be careful!"; (3) a suggestion, less imperious than a command, e.g. "Would you like to . . . ?" and (4) use of reasoning, i.e. giving the reason for a command, e.g. "Don't put the knife in your mouth—it will hurt you". This was usually scored together with a command or suggestion.

It can be seen from Fig. 8 that the difference in absolute numbers of commands issued by Mother and Father is enormous, although the difference in relative frequency is smaller. The average number of commands and prohibitions together for Mother is 87·5 and for Father 37·4. This discrepancy will partly be due to the Mother's longer presence during our observations, but there remains a large discrepancy if one equalizes for time present and this will reflect the fact that Mother feels more responsible for the Child's behavior and has a tendency to intervene more —on his behalf, as well as in order to restrain him. An interesting corollary to Mother's greater intervention is the fact, to be documented in detail in a later paper that a smaller proportion of her commands, suggestions, etc. than of Father's are complied with by the Child.

Commands and prohibitions together occupy a preponderant position among parents' control statements. The range for Father command and prohibition percentages is much larger than that for Mother, indicating that Fathers varied very widely in the use of this form of control and that some relied more heavily on it than even the most controlling of Mothers. Suggestions are employed much more sparingly and Mothers and Fathers are vey much on a par in the extent of their use. The use of reasoning is relatively rarer still.

The Comply Ratio was worked out for Mother and Father as it was for the Child (Fig. 4) and it will be seen that its distribution is very similar for all three, except that some Fathers seem to reach a status of saintliness that is not vouchsafed to either Mother or Child.

Significant differences as a corollary of Mother's education are only patchy. However, the differences that do not reach significance are all in a similar direction: college-educated Mothers as well as their husbands, employ fewer prohibitions and use more suggestion and reasoning, as a proportion of all their actions; similarly, they comply more readily with their children's requests. Since this result confirms

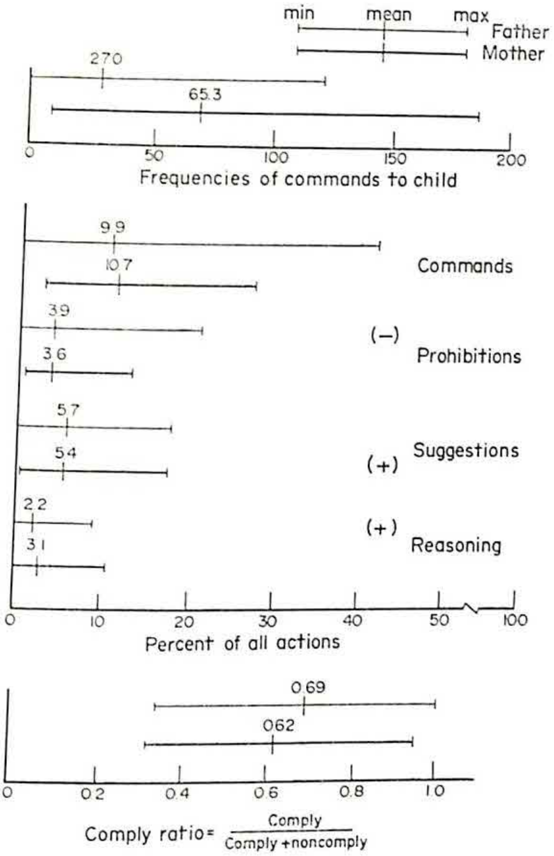

FIG. 8. Mother and father control behavior and compliance.

a similar finding by Minton *et al.* (1971) one can have considerable confidence that this tendency is a stable accompaniment of Mother's education.

The figures throw an interesting light on the relative salience of various forms of control used by parents. The number of commands must be interpreted in the light of the fact that parents were dealing with $2\frac{1}{2}$-yr old boys. It would be fascinating, though difficult, to obtain a natural history of command-giving for varying ages, as well as for girls.

Positively and negatively toned behavior

The entries in Fig. 9 are individual coded verbs, except for "Affectionate behavior", "Positive action" and "Negative action". "Affectionate behavior" is a category built by summing "Expression of pleasure" (defined as for the Child), approving, expressing affection verbally, holding Child in arms, hugging and kissing, taking Child on knees. "Positive action" for parents includes all the verbs which defined "Positive action" for the Child (i.e. it comprises all affectionate behavior) and in addition it includes feeding the Child. "Negative action" for parents includes all the verbs which defined "Negative Action" for the Child except for restricting (or physical intervention) and hitting which, for analysis purposes, formed a separate category of "Physical Control", and yelling and disorganized behavior—the latter would hardly occur with parents.

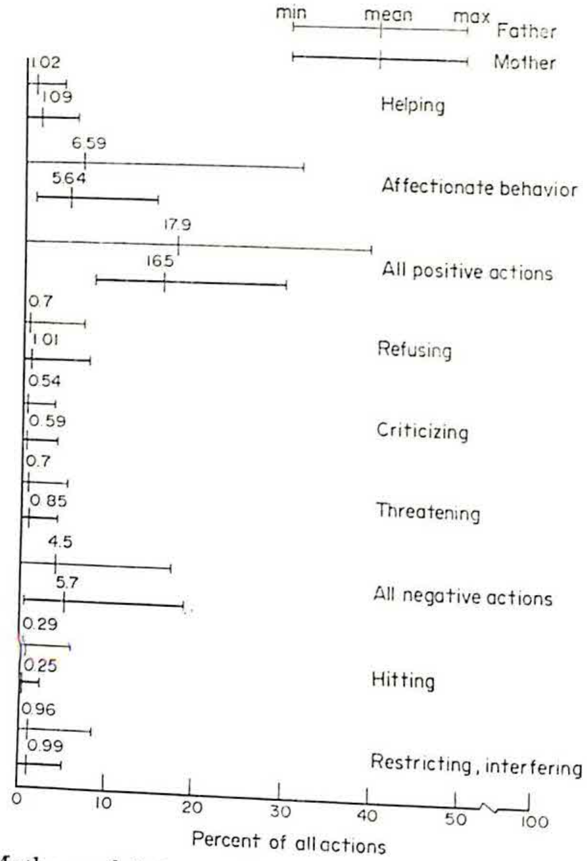

FIG. 9. Mother and father positively and negatively toned behavior.

Father seems to display more affectionate behavior to the Child than Mother does. However, we must remember again that our observation took place at a time when Father typically was ready to play with the Child and Mother was worn out. The same circumstances may be reflected in the slightly greater proportion of "Positive actions" all round and the slightly lower proportion of "Negative actions" that are shown for Father as compared with Mother. However, for "Hitting" the roles are reversed—Father employs this physical form of control more than Mother and hence one wonders whether Mother does not, in any case, perhaps because of her greater involvement with the Child, engage in relatively more verbal negative actions, including non-compliance with the Child's requests (cf. Fig. 8) than Father. Father, on the other hand, engages more in physical contact with the Child—romping as well as hitting. It should be noted that all playful negative behavior, e.g. playful threatening and playful hitting, was excluded from this count.

In any case, the differences between Father and Mother, though consistent, are relatively minor—and therefore were not tested for significance. On the other hand, the incidence of "Positive action" for both Mother and Father is considerably greater than that of "Negative action", whereas the Child displays more negative than positive actions (Fig. 5).

No significant differences in line with Mother's education emerged at all in these categories of behavior. Even the direction of the differences that were present was not consistent. One can only conclude that warm affectionate behavior is not linked to any level of education (nor, by implication, to class).

Multivariate testing of differences between mother's education groups

Significant differences between higher and lower Mother's Education groups that emerged from univariate *t*-tests have been reported for a number of variables. However, in view of obvious correlations among variables derived from the same persons, such independent *t*-tests are not strictly speaking appropriate. Three multiple regression analyses were therefore run to see whether the association between Mother's Education and selected Child, Mother and Father variables, entered as the independent variables, was still significant after the effect of the other variables (derived from the same person) had been taken into account.

The variables tested in this way were those that had proved to differentiate significantly between Mother's Education groups by *t*-test. Among Child variables, Rate of Speech and Comply Ratio entered significantly into the regression (beta weights had p's of $< 0{\cdot}01$ and $< 0{\cdot}25$ respectively). Total physically active behavior (percent of time) made a significant additional contribution to the R^2 ($p < 0{\cdot}01$), but displayed no significant beta weight. Expression of pleasure and displeasure were in this multivariate form no longer associated significantly with Mother's education. The overall regression of all five variables was significant ($R^2 = 0{\cdot}188$, $p < 0{\cdot}01$).

Among Mother variables the only one that produced a significant beta weight ($p < 0{\cdot}05$) was Rate of Mother–Child Speech. The regression of Reasoning, Suggestions, Prohibitions and Commands was no longer significant when they were entered into the regression equation in this order. The overall regression of all five variables was significant at the 0·05 level, however, ($R^2 = 0{\cdot}101$).

The same variables were tested for Father: Reasoning and Prohibitions were still significantly associated with the Education variable ($p < 0{\cdot}025$) and $< 0{\cdot}05$ respectively) in this multivariate form, but the others were not. The overall regression here, too, was significant ($R^2 = 0{\cdot}108$, $p < 0{\cdot}025$).

Example of control sequence. An example of a control sequence gives the flavor of such Mother–Child interactions which mere figures cannot, of course, capture. The sequence is taken from the coded record, amplified by explanations in longhand, written underneath the code at the time of transcription. It comes from a twin family, with no Father in the house, border-line middle class. All but one of Mother's commands are addressed to one Child and the whole interaction occupied 90 sec during dinner. (M = Mother, C = Child.)

C: My nose is dirty. M: What do you say? C: My dirty nose. M: What do you say? C: Clean it off. M: Say 'Please'. C: Clean it off. M: What do you say? C demands again. M: Is that how you ask nice? C demands again, then whines, then demands again with a yell. M: Where's 'Please'? C demands again. M: Where's 'Please'? C demands again. M: Say 'Please'. C still does not comply. M feeds both twins. M (to both): Don't spill this milk. C: My nose is dirty. M. What do you say? C: Please. M shows her approval and cleans his nose. M: You can say sorry. C: Sorry. M: Just bad boys say bad words. Don't say bad words. C says something in compliance with M's wishes and M shows her approval. End of sequence. (Where actual words are not quoted the record does not specify what they were, but only indicates, say, a demand or approval.)

CONCLUSIONS

The findings speak for themselves and I will call attention only to a few important implications.

The summary descriptive statistics presented here only provide a skeleton framework outlining the rough dimensions overall which characterize the interaction between parents and children. The categories themselves, e.g. 'Commands', or 'Positive action', too, are comparatively gross classifications and many qualitative nuances are inevitably lost at this level of abstraction. Such qualitative aspects of the interaction are in principle recoverable by utilizing the adverbial indicators in the code or by studying the detailed records with their longhand comments. A control sequence has been quote verbatim, as an illustration.

One striking aspect of the triadic system Mother–Father–Child is the reciprocity inherent in it. Greater amount of speech by college-educated Mothers is echoed by greater amount of speech by their children. Greater compliance by children of college-educated Mothers has its counterpart in (slightly) greater compliance by their Mothers and Fathers. Indeed, the distribution of the Compliance Ratio is very similar for Child, Mother and Father and a correlational analysis has shown that they vary together to a significant extent. This even balance between Parent nad Child actions, however, breaks down when it comes to 'Positive' and 'Negative actions': Children engage in slightly more 'Negative' than 'Positive actions' but with both Mother and Father the reverse is very strikingly the case. This contrast may exist partly, at least, because Children (at 2½-yr) are not in the habit of prohibiting any of their Parents' behavior and hence 'Negative actions' from this source will virtually be absent from the Parents' count. But in addition Parents do seem to try to exhibit positively toned rather than negatively toned behavior to their children (one might detect effects due to the presence of an observer here, of course) whereas 2½-yr old boys are much less given to controlling their momentary hostile or unpleasant feelings or asocial impulses. It should be noted that Mothers' and Fathers' total of 'Negative actions' would still remain well below that of the Child and of their own total of 'Positive actions', if one added Prohibitions, Hitting and Restricting to the narrower category of 'Negative actions', as from a broader point of view, one might well do. The relative prominence of 'Negative actions' for the Child is, in any case, striking.

Another area where Child and Parent behavior is complementary rather than at the same level is that of Commands or Requests. The Child issues, both absolutely and relatively, far fewer of these than do his Parents—an unsurprising finding which confirms expected authority relationships.

The fact that differences between groups based on Mother's education were relatively few, and mostly minor, is striking—there were even fewer variables significantly related to social class, as determined by Father's occupation. The absence of differences may partly be due to the fact that social interaction rather than cognitive variables was the focus of the study. But, in addition, the finding suggests that the gap in child-rearing practices—and in children's social characteristics—between different education and social groups may be narrowing in what is a fairly uniform urban society. (No non-European ethnic minorities were represented in the sample.)

One aspect of the findings that is of general interest is the fact that these detailed counts of actually occurring behavior have confirmed that Mother is, overall, the main object of attachment for these 2½-yr old boys. The fact that more "attachment behavior" is directed to her than to Father is all the more significant since, as we noted earlier, observations were carried out during what was Father's "playtime" and there was actually more rough-and-tumble play with Father than Mother. That Mother is the main object of attachment for most children is, of course, theoretically expected since she is the primary caretaker. The fact has received empirical confirmation for infants (e.g. Schaffer and Emerson, 1964) and here we have confirmation for 2–3-yr olds overall. The data so far, however, do not tell us for how many and which children this relationship is reversed.

The data presented in this report do not allow us to trace the development of behavior over age. It would be of considerable interest to know what changes in the distribution and balance of behavior both by Child and Parents, take place as a function of age. Some studies presenting behavior observation data for infants have already been published (e.g. Clarke-Stewart, 1973), but there is a marked lack of them for later ages, when they do, indeed, pose greater practical difficulties. However, ecological studies of Parents' and children's behavior at different ages are highly desirable and they would be particularly useful if the comparability of behavior categories from study to study was made a primary concern.

SUMMARY

One hundred and thirty-six 2-yr old male twins and singletons and their parents were observed in the home. The incidence and distribution of certain types of interactive behavior by child, mother and father are reported, based on behavior counts. Mother was the main focus of the child's attachment behavior and was also more involved in disciplinary control. The data were broken down by Mother's education. Better educated parents used prohibitions slightly less and reasoning more than other parents. A reciprocal interaction system prevailed in the area of speech and compliance: more speech and more compliance by better educated parents was reflected in more speech and compliance by their children.

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GANG CHARACTERISTICS: AN EMPIRICAL SURVEY

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INTRODUCTION

The study of neighbourhood juvenile gangs has been an important feature of American social psychology for almost 50 years although not so much investigation has been made into this social phenomenon by European psychologists. Thrasher (1927) viewed the juvenile gang as a training ground for delinquent activities, for example snatching purses, theft from shops and opening cars, as well as inculcating in the individual attitudes of irresponsibility and indifference. In this way the juvenile gang provided an avenue to a criminal career as an adult. Later writers of the Chicago School such as Tannenbaun (1938) placed the failure of the socialisation of gang members with the community at large. The community had created the delinquent collectivity through inadequate housing and the advent of slum districts as well as the lack of social amenities and poor education. Whyte (1943) agreed with this interpretation and saw the juvenile gang as a purposeful, constructive force which provided support for members in times of social stress and economic difficulties.

More recently many theorists have investigated the juvenile gang using the concept of the delinquent subculture. Cohen (1955) in his book *Delinquent Boys: The Culture of the Gang* initiated a fascinating debate on the origin and subculture of these juvenile groups. For Cohen the delinquent subculture was a reaction formation against the accepted norms of society and it assumed defiance and contempt for the dominant culture. The delinquent gang was viewed as a stable, coherent grouping which resisted all attempts of social intervention and reform. It should be noted that Cohen was aware of the complexity of initiation into a subculture and that he now freely admits that his original theory can no longer stand without modification (Cohen, 1966). Another popular interpretation of delinquent subculture stems from the work of Miller (1958) who regards delinquency as arising from lower class youth who are socialised in an environment which is essentially illegitimate in its perspective when contrasted with the accepted conventions of the middle-class. Cloward and Ohlin (1961) also advocate that delinquent subcultures stand in opposition to the respectability of middle-class morality and suggest that it may take a variety of forms: firstly, there can be the criminal subculture which operates for successful gain; secondly, a conflict subculture which arises when crime is largely unsuccessful and offenders resort to violence [typified by gangs described by

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Yablonsky (1967) in a New York study]; thirdly, there is the retreatist subculture which is most noticeable in a group which resorts to drug-taking.

In the British context there have been relatively few research projects into the nature of gangs and the value and validity of delinquent subcultures. Mays' (1954) central viewpoint in *Growing Up in the City* was similar in many ways to that of Miller (1958)—the ordinary delinquent is a normal youth who develops in and adjusts to his subculture. In another important delinquency study Downes (1966) found little support for gang delinquency as reported by Cohen (1955) or Cloward and Ohlin (1961). Fisher (1970) also found little evidence for the theories of Cloward and Ohlin and Dunlop (1972) have questioned some aspects of Miller's (1958) position. Though gangs are in evidence in some English studies (Fletcher, 1964; Willmott, 1966) they are not viewed by commentators as a central factor in juvenile delinquency. Evidence of a different nature from these studies comes from Patrick (1973) who found that gang delinquency in Glasgow had a great deal in common with the violent gangs of New York reported by Yablonsky (1967).

The current state of social psychology with reference to juvenile gangs is inconclusive but both stimulating and provocative. This paper is written with the intention of adding further information regarding juvenile gangs in a British context and of offering some general comments for consideration at a time of renewed interest in this field.

METHOD

A survey which consisted of three separate but related stages of investigation was undertaken concerning the characteristics of juvenile gangs:

Firstly, through unstructured interviews and casual discussions with young offenders aged from 13 to 16 yr an attempt was made to obtain first-hand evidence about local gangs and their activities. The author had the opportunity to collect such information from over 300 offenders within this age range most of whom had been committed to a List D School (formerly an Approved School) in the West of Scotland. The sample also included offenders in an Assessment Centre, boys released from List D Schools and others at comprehensive schools. The vast majority of these boys came from the Strathclyde Region and for this reason the content of this paper is concerned mainly with juvenile gangs in the West of Scotland. The sphere of enquiry could be briefly summarised under the following points:

(a) Was the boy aware of the existence of a local gang?
(b) If so, what was its name?
(c) What could the boy say about its general organisation?
(d) Did the boy participate in gang activities in an active manner?
(e) What were the gang's activities (whether of a social or delinquent nature or both)?
(f) Was there a definite status for individual members within the total structure of the gang?
(g) What specific needs did membership of the gang satisfy for its members?
(h) Were there any junior groups associated with the dominant gang?
(i) Were territorial claims made by the group?
(j) A case history of the individual concerned.

As far as was possible during this first stage the interviewer did not adopt the role of one seeking to elicit information but rather the role of a friend discussing various aspects of the subject's local environment. The line of enquiry followed an informal pattern and did not involve note-taking in the presence of the subject.

Secondly, through home visits, court work, social background reports, a knowledge of both individuals and their districts and contact with social workers involved with their welfare further data were collected to examine the validity of the boys' testimony.

Thirdly, towards the end of the investigation explicit questions covering various aspects of the points listed above were given to a random sample of 60 offenders. Some of the numerical evidence forwarded by this group was used to substantiate points which had already become clear from the testimony of the larger group of offenders.

Two major difficulties should be mentioned at this stage. The first is that the allegiance of young offenders to their juvenile gangs is not a subject which permits uncomplicated investigation. When young offenders discuss the group values and behavioural characteristics of their gangs the reports obtained are often vague and disjointed. For example members of the same gang sometimes gave conflicting accounts of its activities. Further in-depth investigation was required to analyse the reasons for these discrepancies and to understand the different viewpoints of the individuals concerned. A second major research difficulty which particularly concerns delinquents in the restricted environment of residential training is that they will frequently twist true accounts of their local gangs to fit the preconceived stereotype of the investigator. The motivation behind this tendency was often not deceit but social pressure to conform to the expected norms or to bolster the power and status of the group with which they were associated. Offenders whether in the arrest situation or not were inclined to exaggerate both the size of their gang and the extent of its delinquency not only to an outsider (Willmott, 1966; Yablonsky, 1967) but also among themselves. Both problems were overcome to some extent with the aid of a control group of non-offenders from the same or similar delinquent environments and by checking information obtained with independent sources.

This paper does not purport to discuss all of the information received but wishes to confine the discussion to comments regarding (1) the organisation of local gangs (2) the status of individuals within the gangs (3) the nature of other groups associated with the dominating gang of a particular area and (4) an inspection of the gangs' delinquent activities. Certain conclusions will be drawn concerning the concept of the delinquent subculture which has been the central topic of controversy in this area in recent years.

DISCUSSION

The organisation of the urban gang

As mentioned above Cohen (1955) viewed the gang as a stable, coherent organisation which is governed by a set of common norms. In this respect he was in agreement with the earlier theorists such as Whyte (1943) in his classic study. Other research into the organisation of gangs does not always find this characteristic to be the case as can be witnessed in Patrick's (1973) observations. Like Yablonsky (1967) he found an impermanence and flux in both norms and allegiances. Among theorists dealing with the subject of delinquent collectivities there is always the danger of concentrating on only one type of group formation or on one particular fashion of gang activity and of neglecting the fact that there are many varieties of delinquent groups. In this study boys from over 50 urban gangs were interviewed and it would appear that in a large urban area there can be different types of gangs (or indeed none at all) and that these groups may emphasise differing aspects of group behaviour. In fact the overall organisation of the gangs researched varied from being loose and flexible (Yablonsky, 1967) to organised and stable (Cohen, 1955). There does exist the violent group whose "core" members are sociopathic youths with clear emotional disturbance evident in their mannerisms but this is to describe only one type of gang. The cohesive, anti-social group described by Cohen was also present and although the membership was changing this flux was slow enough to guarantee enduring stability to many of its characteristics. Other collectivities were not so much "gangs" in the strict sense of the term but corresponded more to fleeting delinquent associations as described by Scott (1956) in his London study. The general organisation of the local gangs inspected could be said to fall along a continuum between the two poles described above. There is therefore no contradiction inherent in describing several types of gangs whose organisation may lie at different stages of this continuum and it is important not to stress one particular type alone as if it is the only kind which exists. The organisation of a gang must also take account of the status of its members which is the next point for discussion.

The status of members within the gang

Frequently one finds that gang members have no clear idea of how their gang originated or why it adopted a certain structure with an unwritten code of norms. When one inspects the position of members within a delinquent group it is important to ascertain the perceived role of the members *vis-à-vis* the gang network of a particular locality. This will depend on how membership of the gang answers the special needs of an individual and on the different ways that other members accord an individual status and role within the group. Basing my diagnosis of status among gang members on the accounts of the boys themselves there appear to be certain discernible grades within gangs. These gradings, which are not to be interpreted in a rigid manner as they frequently overlap with each other, are more applicable to the coherent and structured gang formation but are useful in analysing any gang network.

Firstly, there are gang leaders or "top men" who are held in high respect mingled with fear by their minions. Their names are often synonymous with the gang and their reputations stretch beyond its boundaries.

Secondly, there are boys who regard themselves as committed members of the gang and who are closely associated with the leaders thus forming a central delinquent core. These boys engage themselves in the organisation of gang activities and, in the more violent gangs, may carry "chibs" (weapons) for the leaders.

Thirdly, there are boys who are gang members but not in the deeply committed sense of the other two types mentioned above but rather as fringe members. Their function is to participate in gang activities if they feel inclined to do so or perhaps when it is demanded of them.

Finally, one should also take cognisance of a group which may be termed "drifters", that is youths who sometimes participate devotedly in gang activities while at other times are totally apathetic to its existence. These boys are distinguishable from fringe members in that they lack role stability in relation to the other youths who make up the delinquent gang. They are sometimes regarded as "oddballs" by their peers because they cannot be readily understood or classified by them.

This hierarchical structure within many gangs as witnessed by this observer has been diagrammatically summarised in Fig. 1. If one considers only the first two categories as clearly identifiable gang members then the fact that the normal gang consists of a relatively small number—at times as small as five—of boys who are often disturbed adolescents becomes apparent. This observation also accounts for the number of membership being frequently exaggerated by members themselves who may consider all four categories of boys as owing definite allegiance to the gang.

Three other major factors which influence the attitudes, values and behaviour

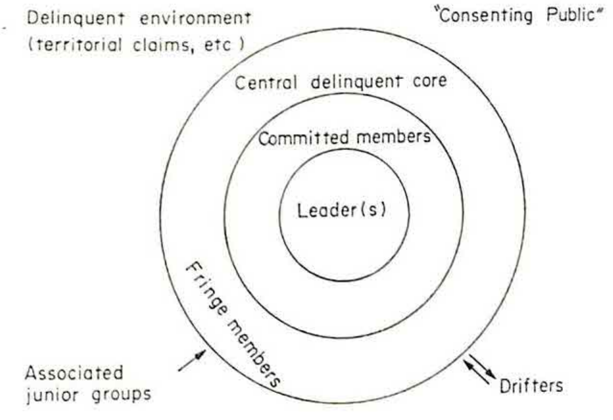

FIG 1. The hierarchical structure within many gangs.

of the delinquent gang as it exists in its wider social context are shown in Fig. 1. One is the particular delinquent environment or district within which the gang carries out its activities. This will determine the area over which the gang exercises territorial claims, the "success rate" of its delinquent activities and the nature of these offences. If for instance its territory is in dockland then it could be more likely to handle drugs. Closely related with the delinquent environment is the attitude of the "consenting public" within this district. The term "consenting public" implies that the public as a whole often allow the deviant activities of the gang(s) in their vicinity to exist at least through tacit consent or a refusal to become involved in taking steps to interfere with their delinquency. Sometimes the public may ostensibly criticise their activities while refusing to divulge information to the police, ignoring gang fights and allowing their own children to associate freely with known gang members. In Fig. 1 therefore the juvenile gang is viewed as a subset within the total milieu of a particular vicinity. The remaining factor in Fig. 1, associated junior groups, will be described in more detail as it plays a crucial role in recruitment and socialisation of gang members.

Associated junior groups

Most gangs inspected were not composed of one single group of adolescents forming a clearly distinguishable entity which can be immediately recognised by an observer. Some of the characteristics noted in Patrick's (1973) participant–observer study of a Glasgow gang match the findings of this survey. Gang boys often progress from membership of a junior gang to membership of an older and more senior form of the same "team". For example a gang described by one boy was made up of four distinct parts:

Ƶ Gang approx. 16 yr of age and upwards.
Associated Junior Groups {
Young Ƶ Gang approx. 14–16 yr of age.
Tiny Ƶ Gang approx. 12–14 yr of age.
Toddler Ƶ Gang approx. 7–12 yr of age.

When questioned regarding the number of sections in their local gangs the results obtained from the random sample of 60 offenders were as shown in Fig. 2. It was not surprising to find that some boys did not know their local gang well. This can

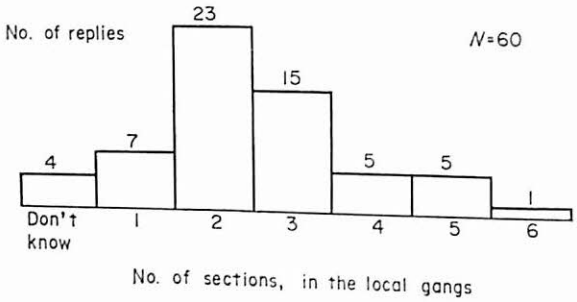

FIG. 2. Histogram showing the number of sections in the local gangs as reported by the young offenders.

arise from a variety of reasons, e.g. the offender is not interested in the gang's activities; he may have spent so long in training establishments that he has never had the opportunity to become an active member and so on. It can be seen from Fig. 2 that only 7 boys reported their local gangs to have only one section. Such gangs tend to be centred on a relatively small territory for instance the one-street gang. In fact 26 boys (44%) reported that their local gangs had at least 3 sections and one boy gave details of 6 clear divisions—the main gang and 5 junior sections associated with it. In the case of the boys who reported two sections—a senior and a junior group—one suspects that many of these boys did not consider youngsters below 12 yr of age to be associated with them although it is clear that in the minds of many of the youngsters themselves some form of association is being established through a complex process of socialisation. One conclusion from this study is that the process of initiation into the gang-like way of life begins at an early age—a point which is often neglected by social psychologists inspecting the juvenile gang. Groups of youngsters were observed imitating some of the behavioural characteristics of the older gang boys of their locality. For example one psychologist reported that he had watched a mock battle between two groups of 7 yr olds taking place under the watchful eye of adolescents. His point in reporting this incident was that here in embryonic form was a behavioural pattern which might lead to serious delinquent tendencies at a later age. It is evident that further research is required to ascertain what form of social intervention would be most effective in assisting these children at an early stage of child development (West, 1969). The efforts of a well-maintained youth service (Mays, 1963) in a particular district could prove to be of the utmost importance. It is acknowledged that the boyish enthusiasm and high spirits of these children have been channelled successfully along more positive and socially acceptable lines by dedicated workers in this field but it is suggested that there remains much more that could be done in under-privileged districts.

The activities of the delinquent gang

When describing the behavioural characteristics of juvenile gangs there are many different aspects to be considered. The observations of this study would suggest these behavioural components should be classified along various continua such as:

Violent behaviour .... Non-violent behaviour;
Participation in organised theft .... Non-participation in organised theft;
Closely defined territorial claims .... No territorial claims, etc.

Each of these continua might require further division in order to reach a precise notion regarding a gang's activities. Other considerations would include the attention given to drinking, drugs, vandalism, gang slogans, girl members, gang parties and so on. Each of these matters has to be dealt with individually when inspecting a particular gang as the behavioural characteristics related to each of these activities will again vary along a continuum between opposite poles. It should be mentioned that many boys find a means of satisfying purposeful social and recreational needs in the company of their fellow members and look to the gang as providing a sense of belonging and safety. No two gangs are identical in their motivation or behaviour and this fact should be taken into account by social workers anxious to make headway with these juveniles.

In general the gangs studied in this survey provided their members with an outlet for delinquent activities with acts of theft, vandalism and violence being the most characteristic forms of this behaviour. Territorial claims ("We mad Zowie rule this pitch") were also very much in evidence among many gang boys. This in turn had led to outbreaks of gang warfare between different factions.

The manner in which offences had occurred among the group of 60 offenders mentioned above is shown in Table 1. From the 60 offenders questioned 48 belonged to juvenile gangs while 2 had been in gangs but had left. These 2 boys along with 35 of the 48 in gangs admitted to having committed offences with a gang.

Table 1. The manner in which offences occurred among the sample of offenders

Boys in juvenile gangs 48			Boys not in juvenile gangs 12	
Boys who have committed offences in the company of a gang 35		Boys who belong to a gang but have only committed offences when not in the company of the gang	Boys who did commit offences with a gang but who have now left the gang	Boys who have committed offences but do not belong to a a gang
Boys who have only committed offences with a gang	Boys who have also committed offences when not in the company of a gang			
8	27	13	2	10

$N = 60$.

There was little doubt from the case histories of the boys studied that the juvenile gang was a major factor influencing offenders in that it helped to impart a training to its participants which was basically anti-social.

Two further considerations which are of theoretical importance can be noted at this point. Firstly, this investigation over approximately three years never came across a gang which was clearly drug-orientated although many of the individuals interviewed had been involved in taking drugs. It would appear that retreatist subcultures (Cloward and Ohlin, 1961) are not prevalent among Glaswegian youths of 16 or under (see also Short and Strodtbeck, 1965, p. 12). This is not to say that such a group does not exist or that in different social circumstances it would not emerge. Secondly, inspection of offences for monetary gain among young offenders showed that for the most part these offences had occurred in a haphazard and disorganised fashion usually with the intention of gaining a quick profit—money in itself appeared to be the loot that was most desirable. Some qualifications must be added however because examples of organised crime could be found among the offenders although it usually occurred when there was the aid of adults available. Two examples of this sort of crime (a gang of juveniles organised by an adult(s)) were witnessed among the gangs investigated in this survey. In both cases the gang made a lucrative profit—in one instance from thefts from homes in rich suburban districts and in the other from pick-pocketing and bag-snatching—which would have been beyond the potential of the youths concerned if left to their own devices. Exceptions such as these coupled with the fact that even at an early age some juveniles openly admit that they specialise in one particular type of crime for profit may help to shed some knowledge on the beginnings of a criminal career. This is a role adopted by professional adult criminals but it is to be stressed that among the juvenile gangs investigated this aspect of criminology if present at all was witnessed only at an early stage.

CONCLUSION

The observations of this survey, while contrasting sharply with some of the other empirical research mentioned already such as Mays (1954), Scott (1956), Downes (1966) and Willmott (1966), indicate that future cross-cultural studies might be able to isolate important aspects of the manner in which delinquent variations emerge from different social environments. It is generally acknowledged that the West of Scotland is not typical of British industrial areas in that the problem of neighbourhood gangs is considered to be more serious in this part of Britain than elsewhere. One of the reasons for investigating the juvenile gang in this particular region was that there were the advantages of obtaining a more detailed picture of many aspects of this social phenomenon and of being able to interview many gang boys. The survey found that the extent of the problem is unevenly spread from one neighbourhood to the next and that most of the juvenile gangs are not as highly organised as is sometimes expressed in the mass media. The overall impression after inspecting over 50 juvenile gangs is that no single theory can account for the many different characteristics involved (Witkin, 1971). As yet an eclectic approach to the theorists dealing with delinquent gangs would appear to be the most reasonable outlook to adopt. Matza (1964, p. 33) maintains that there is not a delinquent subculture only a subculture of delinquency. The findings of this research do agree with this opinion in that there is a subculture of delinquency but must go further and conclude that there can also be different forms of delinquent subcultures. There are certainly juvenile gangs in existence whose attitudes, values and behavioural characteristics are so anti-social in content that they form what Yinger (1960) would term a "contraculture".

While academics debate theories lying behind the phenomenon of the delinquent gang, teachers, social workers and police must deal with the problems as they meet them without waiting for the final solution (West, 1966). As for the success of single intervention schemes there is little real encouragement. Any intervention scheme must not be narrowly based but must contain a comprehensive appraisal of the social problems in a district and tackle the wider issues of housing, recreational facilities and education as well as individual training for the more disturbed gang members. Any form of training which merely removes an individual from his delinquent setting for a short period of time without attempting to ameliorate the broader aspects of the delinquent's milieu such as family, peer groups and employment is short-sighted and incomplete. Such a comprehensive approach must take special account of the delinquent gang where one exists as this research indicates that it can be a major factor influencing its members' behaviour.

SUMMARY

This research report is concerned with the organisation of delinquent gangs, the status of individuals within the gang, junior groups associated with the dominant gang and the activities of the members themselves. It suggests that a broadly based approach to the various theoretical models of delinquent subcultures is essential as no single model explains the wide variety of delinquent groupings which can exist in a large urban area.

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CLUSTERING AND SOCIALLY-DIRECTED BEHAVIORS IN A PLAYGROUP OF 1-YR-OLD BOYS

EDWARD MUELLER* and ADRIENNE RICH*

WHILE Blurton-Jones (1971) considers the second year of life as the most exciting year of childhood, he also recognizes it as the least known. Piaget's (1926) research suggested that children were incapable of developing much social interaction before the age of four or five. Maudry and Nekula (1939) found fighting to be the dominant social activity of 1-yr-olds. However, recently, the absence of early social contacts or their primarily negativistic character has been disputed both for 1-yr-olds (Vincze, 1971) and for older preschool children (Mueller, 1972). Indeed these studies, together with Bridges (1933), suggest that the second year of life is the ideal time to observe the emergence of peer interaction.

Peer interaction is of interest because there is clinical evidence suggesting that peer contacts can be very supportive to older children even under conditions of great stress (Freud and Dann, 1951). There is evidence from primate studies suggesting that peer interaction may prevent or undo some of the traumatic effects of deprivation of adult–infant contact (Suomi and Harlow, 1972).

Before understanding of the early development of peer social interaction can progress very far, it is necessary to have descriptive information on early contacts between peers. It is also necessary to be able to assess when children act socially—that is, to produce behavior for its effect on other children and not merely for the pleasure of the action itself. Utilizing a playgroup of five 1-yr-old boys, this study provides some of these descriptive data and tests a methodology for the study of socially-directed actions in 1-yr-olds.

From the first session of the playgroup, the toddlers came together repeatedly and focused on single activities. Sometimes there were only two children in these contacts, but it was striking how often all children in the room gathered around the same toy for about a minute or so, before departing for other activities. These "clusters", as they came to be called, were chosen for detailed study for a number of reasons. First, the presence of clusters had not been previously documented in the peer–peer interaction. Yet, if they occurred frequently, they showed the power of toys, or of child actions on toys, in bringing children together and keeping them in contact for more than a few seconds. Second, since clusters were usually times of close physical proximity of at least three of the five children studied, they were high in potential for revealing the appearance of socially-directed behavior between the children. Third, it was not technically possible with the present methodology to observe all two child contacts occurring in the room. These are no doubt

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important and new data are being gathered to reveal their frequency and content.

The study then had two goals. The first was to document the existence and properties (formation, duration, participation, termination) of clusters. The second was to test an observational methodology for assessing the emergence of socially-directed behavior in peer interaction. Because of the nature and small size of the sample, the substantive results are seen as tentative.

In order to illustrate clusters, and the socially-directed behaviors that occurred during them, two contrasting examples are presented. The first, taken from an early playgroup session, is thought to be typical of early clusters. The second, from a concluding session, is thought to be typical of more socially advanced clusters. The first cluster centers around a toy train which has a bulb that can be squeezed to produce the noise of a train whistle. The children were 13–15 months old.

> A child toddles over to the train, squats down and makes the whistle sound repeatedly. All four other children in the room immediately toddle over, seemingly attracted by the sound of the whistle. The initial child makes no acknowledgement of their arrival, continuing to focus, instead, on the train. The newcomers commence manipulating the bulb in the same fashion as the initiating child, but they do not seem very interested in each other, focusing instead on the train. In addition, when one child does glance at another, his look goes unheeded by the child being watched. With the exception of two brief vocalizations produced while a child is looking *at the train,* there is almost no noise in the room. They never smile or laugh during the cluster. As their interest in the interaction *with the train* wanes, the children toddle off one by one. The cluster lasted 50 sec.

Typical of "object-centered" clusters, this one began around a child actively engaged with play material. While the other children were attracted by the display created, and were fully capable of imitating the novel actions they witnessed (Piaget, 1951), they did not coordinate their play with one another. In fact, they seemed to understand so little about their peers that they spent little time watching them. Even when they did look at their peers, they did not vocalize or smile toward them.

The second example of a cluster occurred about three months and 20 playgroups sessions later:

> A child is leaning on a filing cabinet, not doing much of anything. Yet his mere presence attracts another child, who brings a small toy with him. The second child offers his toy to the first. Notice that the act of offering involves both holding out an object and simultaneously looking at another child. After having received the toy the first child smiles at the other child, not at the toy. They continue passing the toy back and forth several more times, often accompanying their social looks with vocalizations. At times an offering movement, a vocalization and social looking all occur simultaneously. A third child has joined the pair and two children now imitate the third one, who is pounding the toy on the cabinet. The imitators are not simply interested in reproducing the action since they also smile at the child with the toy. He laughs back in return. A fourth child joins the others and vocalizes toward the first child. The first child gives him the toy, and the newcomer walks away with it. From the arrival of the third child, the cluster lasts 40 sec.

The second cluster contrasts with the first both in formation and in amount and complexity of socially-directed behavior. In the first, a child was actively playing with toys *before* other children approached and imitated his actions. In the second, a child was doing nothing but was still approached and offered a toy. In the first cluster, the children looked at each other only occasionally. In the second, social looking was frequent and indicated the social character of other behavior which occurred simultaneously with it. For example, when the children vocalized, they were not talking to themselves; they looked at other children as they vocalized.

They smiled and laughed *at* other children; they manipulated toys not only to explore them, but also to offer them to their peers and to see if their peers were attending to their play. Finally the second cluster included one instance where several socially-directed behaviors were coordinated in a single action. While looking at another child, a toddler both offered a toy and vocalized.

Socially-directed behavior is defined here as vocalizing, laughing and manipulating a toy while looking at another child. When appearing without social attention, one cannot determine the social character of these behaviors. A toddler may smile at recognizing a familiar toy. He may vocalize repeatedly for the pleasure of hearing his own production repeated (Piaget, 1926). By contrast, when these behaviors occur simultaneously with social attention, they take on a social character. Bronson (1972) also observing 1-yr-olds, arrived at a similar definition of "social contacts".

By itself, visual attention to another child could have been considered as a socially-directed act. However, the focus in this research is on behaviors which may have social consequences. Laughing, vocalizing, or moving a toy may attract the attention of another child or establish a contingency between the action of one child and that of another. Social attention alone does not produce these effects and therefore appears to be of less importance in the genesis of social exchanges. However, it should be clear that this research does not assess the extent of responsiveness by one child to the social acts of another. An adequate methodology for studying socially-directed behavior must be developed before it can be utilized in operationalization of social interaction.

METHOD

Subjects

The subjects were five first-born males. It was not intended that the playgroup be all first born nor all male. Apparently the parents of first-born boys know the parents of other first-born boys. All but one were ranged in age from 13 to 15 months. One pair of children had played together prior to the first session.

Procedures

The playgroup met for about 2½ hr each Monday and Friday morning for three months. The parents rotated the task of supervising the playgroup. The room was 16 × 40 ft; it contained a variety of toys and play equipment. Often the parent-in-charge would bring materials for special activities, such as finger paint or dress-up clothes. However, even during these special activities, there was little attempt to guide the children's play.

The playgroup was videotaped for one hour each Friday morning beginning at about ten o'clock. It was important to tape before the children became tired and were given their eleven o'clock snack, a very adult-oriented situation. The camera was in the room and was operated only by adults familiar to the children. At this age, but not at age two, the children pay no attention to the camera after discovering they cannot gain access to it.

Method of data analysis

In overview the initial plan was to locate all clusters on the videotapes and code their duration, participation, antecedent conditions and then search each cluster for measures of social intent. This plan was carried out except for the coding of antecedents. It was planned to distinguish various attention-capturing stimuli that might be differentially effective in starting clusters. In fact there were almost always multiple stimuli and it could not be determined whether the noise of the train or its movement was the effective stimulus. Also, after several children were present, it was difficult to tell whether additional children were attracted by the continuing object play or by collection of children, an interesting display in itself!

Clusters were operationally defined as periods of 10 sec or more where three or more children focused their attention on a single object or activity. While the 10 sec limit is somewhat arbitrary, it was desired to omit from the cluster the brief glancing contacts sometimes observed (Kennedy and Mueller, 1972). Since one of the purposes of this research was to demonstrate that 1-yr-olds spontaneously cluster with *each other*, any adult-initiated gatherings were excluded. Notice that clusters are not defined in terms of distance between the children. While clustering usually did imply that the toddlers were spatially close together, there were instances where all the children were engaged with the same activity although widely separated. For example, once they all banged on the baseboard heating grate which extended the entire length of the room.

After a cluster was located, its total duration was recorded. Timing began as soon as the third child arrived and terminated when a child's departure left only two remaining. The size of each cluster was recorded as well as the total number of children present in the room at the time. The child about whom the cluster formed was coded either as active or inactive. An inactive child was one who e.g. merely sat on top of the slide but who did not climb its stairs or slide down during the time the cluster was forming. In addition, each child joining the first child was coded as either "active" or "observer" depending on whether he participated in the play or merely watched. It was expected that the proportion of active children would increase across sessions. Another code classified the types of cluster play. Using this code it could be ascertained whether object-independent clusters such as mutual vocalization exchanges, or chasing and following clusters increased in frequency as the playgroup continued to meet.

Finally, each cluster was scanned for socially-directed behaviors. Instant replay videotape proved particularly valuable in locating these fleeting behavioral events. Each behavior included visual attention to another child together with some other action:

(1) vocalization with looking
(2) smiling and/or laughing with looking
(3) manipulation with looking.

The term manipulation referred to manipulation of an object or of another child as well as such activities as pounding on a table or stamping one's feet. Combinations of the above categories were recorded separately.

Coding reliability was checked on a single tape of one hour duration. The same six clusters were located by both coders. While cluster durations ranged over 60 sec (14–74), differences between coders' estimates of cluster durations ranged over 6 sec (1–7). There was 100% agreement on measures of cluster size, activity level and play type. Regarding socially-directed behaviors, the coders were in agreement that four of the clusters had either zero or one such behavior. There was only one disagreement, during a combined cluster duration of 114 sec, later recognized as an error of omission. The remaining two clusters lasted 124 sec and the coders agreed that they contained a total of 18 socially-directed behaviors. Simple inter-coder agreement of the specific behavioral categories was 74%. Most errors were ones of omission. For this reason, both coders examined *all* clusters rich in socially-directed behavior so that the data represented a combined effort to record an accurate representation.

RESULTS

The eleven analyzed tapes yielded a total of 42 clusters. This represents one cluster for every fifteen minutes of tape. Yet portions of some tapes could not be coded since they included adult-directed activities. Therefore, the rate of clustering for these free play periods was somewhat higher.

Clusters did not vary significantly across months either with respect to frequency, duration or number of children participating (Table 1). While the average cluster lasted 43 sec, a high degree of variability in cluster duration was reflected in a standard deviation of 25 sec. Clusters tended to attract all children present in the room at the time. The modal pattern was for all children present to join (41%). Also, with all five children present, it was more likely that four would join a cluster than that only three would join (22 vs 12%).

TABLE 1. CLUSTER PROPERTIES BY MONTH

	No. of clusters located	Cluster/hr	Mean duration (sec)	Mean No. of children	Participation ratio*
Month 1	14	3·5	53	3·6	0·85
Month 2	12	4·0	35	3·4	0·83
Month 3	16	4·0	42	3·4	0·85
Total period	42	3·8	43	3·5	0·85
Analysis of variance for months	—	Data approximate	*n.s.*	*n.s.*	*n.s.*

*Ranged from 0·6 when a cluster contained 3 of 5 possible children to 1·0 when all children present entered cluster.

Type of play activity did not relate to month or to cluster duration. Overall, 52% of the clusters focused on large "get on" or "pass through" type objects. Thirty-one per cent centered on small manipulative toys. The remaining clusters centered jointly on objects and on non-object activities such as chasing and following or mutual vocalizing. However, during the period studied, no clusters were entirely centered on object-free activities. While imitative body movement and vocalization exchanges did occur between particular dyads, they did not form the basis of any of the 42 clusters.

Given this descriptive information, results bearing on cluster formation and socially-directed behaviors may be presented. Comparing across months, percentage of clusters forming around inactive children was 7, 17 and 44% ($\chi^2 = 5{\cdot}99$, $d.f. = 2$; $p < 0{\cdot}05$). Thus, despite a significant increase in clusters forming about *inactive* children, those forming around active children remained in the majority in Month 3. The number of clusters in which each individual child was active was divided by the total number of clusters he attended. The resulting decimals ranged from 0·91 to 0·79. Thus, if a child joined a cluster, he was much more likely to participate actively than to simply observe.

The rate of occurrence of each socially-directed behavior per minute of cluster time is shown in Table 2. LAUGHING AND/OR SMILING and the coordinated behavior VOCALIZES AND MANIPULATES showed the expected increment across months. There was almost no expression of positive affect while looking at another child during Month 1. After that about one instance of laughing at another child occurred each minute. The rate of vocalizing and manipulating a toy, while looking at another child, also increased across the three month period. The remaining coordinated behaviors appeared only during Month 3 and even then remained infrequent. Finally, the sum of all socially-directed behaviors increased from 3·0/min in Month 1 to 5·9/min in Month 3. These group increases were attributable to four of the five children in the group. The fifth child showed no change. There were clear individual differences with the two children who had played together before the start of the playgroup well ahead of the others.

Socially-directed vocalizations (VOCALIZES) and toy manipulation (MANIPULATES) did not increase as expected. In fact they were frequent even during

TABLE 2. RATES OF SOCIAL BEHAVIORS BY MONTH EXPRESSED IN OCCURRENCES PER MINUTE OF CLUSTER TIME

	Month 1	Month 2	Month 3
Simple behaviors			
LOOKS AND VOCALIZES	1·2	2·6	0·6
LAUGHS (and/or smiles)	0·1	1·6	1·0
MANIPULATES	1·5	1·0	3·0
Coordinated behaviors			
LOOKS,			
VOCALIZES AND LAUGHS	0	0	0·1
VOCALIZES AND MANIPULATES	0·2	0·4	1·0
LAUGHS AND MANIPULATES	0	0	0·1
VOCALIZES, LAUGHS AND MANIPULATES	0	0	0·1
Total—all categories	3·0	5·6	5·9

the first month. Several possible explanations of this unexpected pattern will be considered.

It was thought that object-centered clusters would decrease across months while child-centered clusters would increase. Considering all 42 clusters, roughly one-third can be considered "object-centered" since they contained no more than one socially-directed behavior. Another third were "intermediate" (2–3 behaviors) and the final third was "socially-centered" (4–13 behaviors). However, the frequency of these categories did not differ significantly between months. Thus object-centered clusters continued to be of frequent occurrence (44% in Month 3) throughout the period studied.

Was the presence of many socially-directed behaviors associated with clusters of long duration? The rank correlation across the three months were 0·16, 0·07 and 0·51. Only during Month 3 was this correlation significant ($p < 0{\cdot}05$). Thus, for the first time in Month 3, there appears to be a relation between interest in one's peer and duration of the contact.

DISCUSSION

From their first session together, 1-yr-olds were found to cluster together repeatedly. Early clusters invariably formed around the nucleus of a single child who was actively playing with some object. On the average, clusters were found to be of about one minute duration and were attended by nearly all the children in the playgroup. As such they represent one important mechanism, perhaps the single most important mechanism bringing these 1-yr-olds into contact in a free play situation.

The extent and complexity of social behavior changed during the three month period that the playgroup met. However, before this progression can be summarized, it is necessary to explain why VOCALIZES and MANIPULATES were of frequent occurrence during the first month. One possibility was that these behaviors were not actually social. However, a re-examination of the clusters confirmed our belief in their social direction. The children were directing their vocalizations toward the other children. When a child moved a curtain while watching another child, he did so because of the meaning of the curtain in the context of hide-and-seek, that is in the context of social exchange. Another possibility was that the children had already acquired some skills for relating to each other before the first play session. This interpretation is supported by a video tape of two of the children made several weeks before the first playgroup session. There was evidence on this tape of socially-directed vocalization and offering. Clearly, further playgroup research should begin with unacquainted and younger children.

With this background, the progression across the three month period may be summarized. It should be remembered that this progression is purely descriptive; it is not yet possible to separate the specific role of peer experience from other developmental factors. During Month 1, while some expressions of social behavior were present, the children did not yet coordinate different socially-directed behaviors in single acts. Also, there was almost no laughing or smiling directed at other children. Clustering occurred only about children who were actively playing with some object.

Month 2 clusters were marked by an increase in positive affect accompanying watching other children's actions. This may reflect a major increase in social understanding. Children may laugh because they recognize the contingency between their own actions and those of other children. They discover that peers, like toys, can be controlled through action. Mueller and Lucas (1975) have observed that imitation exists in the playgroup from the first session. However, only after about one month of peer experience do the children become aware of these contingencies, and seek to reinstate them.

During Month 3, social behaviors appeared in combination. Children would look at a peer, vocalize, and manipulate a toy all at the same time. Also, for the first time a substantial proportion of clusters formed around inactive children. For example, the very presence of a child on top of the slide might attract another child and then, together, the pair would initiate coordinated sliding. Finally, only in Month 3 was frequency of socially-directed behaviors positively correlated with cluster duration. All of these changes suggest, and informal observations of the tapes agree, that children were now coming together for the purpose of initiating exchanges with each other and not simply with toys. In Month 3, clusters appeared to be of long duration because of social interchanges which complemented, but never excluded, interaction with slides and tables and toy trains. Increasingly, the children came together to play the "walk-stamp on the table" game or the "hide behind the curtain" game and appeared to be primarily oriented toward the exchange rather than toward the objects which permitted the game to occur. However, one should not exaggerate the progress made. Object-centered clusters remained frequent during Month 3. Truly coordinated exchanges were limited to a small set of games and to particular pairs of children. While we have observed 2-*yr-olds* directing their social acts toward *two* other children at once, we never observed this skill among these 1-yr-olds.

Bronson (1972), also observing 1-yr-olds interaction in playgroups and utilizing a similar conception of social acts, has reached the working hypothesis that the learning of interpersonal contingencies is very difficult to achieve at this age. However, the composition of her playgroup varied from session to session, and sessions were spaced roughly one month apart.

Observing a constant group of children meeting twice a week, this study arrives at a different hypothesis: that considerable interpersonal orientation and skill can be developed before age eighteen months in a free play situation. However, since these children showed some social orientation and skill toward their peers from the first session, future studies might begin with younger children and include no-playgroup controls to differentiate the effects of the playgroup from other developmental progress in the genesis of socially-directed behaviors.

SUMMARY

This study aims at documenting the presence of clustering in a playgroup of five 1-yr-old boys. Clusters are of interest because they bring very young children in repeated contact. In addition, a method is developed for analyzing socially-directed behavior in early peer contacts. When the method is applied to the sample of cluster contacts, it is found that both the frequency and complexity of socially-directed behavior increase across the three-month period studied. The results suggest that 1-yr-olds can profit from regular contact with a consistent group of children. They also indicate the promise of using the methods developed in additional studies.

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EXPERIENCED REALITY IN THREE TO SIX YEAR-OLD CHILDREN: A STUDY OF DIRECT REALITY TESTING

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INTRODUCTION

Eisenberg (1962) states unconditionally about normal children: "Observation of the behaviour of children, certainly from the time language is available for the communication of meaning, indicates that children differentiate as sharply as we do between the real world, to the degree its mysteries have been opened to them, and the inner world of the imagination. Only under extreme pressures from affective distress does their hold on the real world begin to buckle". Jean Piaget correspondingly found that 24 month-old children played in ways which indicated that they could differentiate play from "real acting" (Flavell, 1963). However, mature reality testing includes mature conceptions of objects and causality. The acquisition of the concept of objects "is by no means an all-or-nothing affair. There are distinguishable steps in its construction—stages in which the child has this aspect of it but not some other" (Flavell, 1963).

In this context it seems pertinent to ask whether reality testing is an all-or-nothing affair. The words "real" and "reality" may be used in a number of different senses (Sarbin, 1967). Aggernaes *et al.* (1975b) found that hallucinations in adults could be evaluated in terms of 8 different kinds of experienced reality qualities.

The present exploratory, hypothesis-generating, study set out to answer the following questions: Are 3–6 yr-old normal children able to differentiate, linguistically, between 7 different kinds of experienced reality qualities? Are they able, on each of these qualities, to ascribe positive reality value to real items, and negative reality value to imaginary items?

MATERIAL

At Rigshospitalet, Copenhagen, there is a kindergarten for 3–6 yr-old children of the hospital's personnel. During the six months in which we performed our investigations a total of 66 children were in the kindergarten at least some of the time. Only children who willingly agreed to go with the investigators to a separate room in the kindergarten "to be asked a lot of questions" were examined. A total of 48 children were evaluated by the first author (A.A.). Out of these children the

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second author (R.H.) evaluated 31 simultaneously, i.e. in the same investigational situations. R.H. conducted the interview of 10 of the 31 children.

Age and sex of the examined children:

	Boys	Girls
6-yr-olds:	9	6
5-yr-olds:	5	5
4-yr-olds:	9	6
3-yr-olds:	6	2

Educational level of best educated parent: In 8 cases the best educated parent had an academic degree; in 26 cases the best educated parent was a nurse, student, or laboratory assistant; in 14 cases the educational level was lower.

Although not tested, the children were of average "intelligence" if not above, as far as this could be judged from information from the personnel of the kindergarten.

Thirty-four children lived with both parents, 14 only with their mother. Forty children had no older siblings, 7 had one older sibling, 1 had two. Thirty-one had spent more than 12 months in day institutions during their first 3 yr of life.

With regard to the background variables, mentioned above, the 18 children who were not evaluated did not differ significantly from the 48 examined children, with the exception of the variable +/— older siblings in the 3 yr-old group: None of the 8 examined children had an older sibling, while 6 of 8 not-examined children had older siblings.

From our own impression of the 16 children who were 3 yr old, and from information obtained from the staff in the kindergarten, we would guess that the examined 8 children were not representative of their age group. The not-examined children were, at least in 5 cases, more shy, partly because they had been in the kindergarten for much shorter periods than the examined children. However, the non-examined children may also have had poorer language abilities than the examined children.

In the groups of 4, 5 and 6-yr-old children, however, we have no suspicion that the examined children were not representative of their age groups.

Kinds of items studied in each child

Four kinds of *real items* were used:

A items: Visually perceived items. In the concrete investigation situation this might be a lamp on the table, a particular book in the corner of the room, or a tree which the child could see outside the window.

B items: Actually existing material objects which the children knew very well, but which were not stimulating the sense organs at the time of the investigation. The children proposed these objects themselves. Examples: "My big doll at home", "My red fire-engine at home", or "My tricycle at home".

C items: An actually existing property or ability in a particular person, well-known to the child. Examples: "My father is very strong"; "My mother can prepare nice food"; "Alice is a good playmate".

D items: An actually existing property or ability in the child, itself. Examples: "I can ride a tricycle"; "I can hop"; "I can read 5 different letters".

Two kinds of *imaginary items* were studied:

E items: Figures from fairy tales or comic strips, like Donald Duck, Mickey Mouse, or "a giant". We always studied figures which the particular children knew beforehand. If we could not find such a figure, we used instead "a living mouse or duck which can talk in human language".

F items: "A piece of candy *so* big, on this table now". The investigator indicated the size with his arms to be about one meter in diameter. (There was, actually, no candy on the table.)

The seven different reality qualities studied

Only 7 of the 8 reality qualities studied in adults were studied in the children, because one quality [the quality (6) of independence of a quite unusual state in oneself] is very difficult to study in persons who are not clients in some way.

Four of the qualities are especially important, because they differentiate real from imaginary items completely in non-psychotic adults (Aggernaes *et al.*, 1975a):

Quality 2, the *quality of behavioural relevance.* This is the immediate feeling that the item, actually or potentially, is relevant for one's real emotions or acts.

We used questions like the following to evaluate this quality. A items and B items: "Is it a real lamp which one can switch on?" "Is it a real doll which you can play with?" C and D items: "Can you eat the food which your mother can prepare?" "Do you sometimes ride a tricycle?" E items: "Could you actually meet Donald Duck in the street some day and play with him?" F item: "Could you actually eat some of the candy on the table and become satisfied through eating it?"

Quality 3, the *quality of publicness.* This is the immediate feeling of certainty that other persons are able to perceive the item with their senses if they come within reach of it.

Examples of questions used: A item: "Can I see the lamp too?" B item: "If I was invited, would I be able to see your doll at home?" C item: "If Alice was here, playing with you, would I then be able to see that she is a good playmate?" D item: "Have other people seen you ride a tricycle?" E item: "Could I meet Mickey Mouse and see him with my eyes?" F item: "Can I see and touch the big piece of candy on the table now?"

Quality 4, the *quality of objectivity.* This is the immediate feeling of certainty that the item can be experienced by oneself with at least two modalities of sensation.

Examples of useful questions: A: "The lamp which you see, could you also touch it if you could reach it?" B: "Your fire-engine at home, can you both see and touch it when you come home?" C: "Have you both seen and tasted that your mother can cook?" D: "Have you both seen and heard (and felt) that you can hop?" E: "Would you be able to both see and touch Mickey Mouse?" F: "Can you both see and touch the candy on the table here?"

Quality 5, the *quality of existence.* This is the immediate feeling that the item exists also when nobody experiences it at all.

A: "When we leave the room and talk about something else, then nobody sees or thinks of the lamp. Is it there, nevertheless?" B: "A moment ago we did not think of your doll at home. Was it there, after all?" C: "Is your father a strong person, even when we are not thinking of it?" D: "In a moment we are going to talk about something else; will you then still be a child who can ride a tricycle?" E: "Does Donald Duck exist when nobody thinks of him—or is it only something we play or imagine?" F: "Is the candy really there, or is it only something which we play or imagine?"

The anwers were coded as being positive, negative, or doubtful (+, —, or D). The above 4 qualities are, in non-psychotic adults, practically always + in A, B, C, and D items, and practically always — in E and F items. Such answers are referred to as conventional answers. Other answers are called "abnormal". D-codings were used both when a child clearly expressed his doubt, and when the child shifted between + and — answers when we framed the question in different ways.

Quality 8, the *quality of involuntarity of the item,* is *always* positive in relation to real items, and *usually* negative in relation to imaginary items—in non-psychotic adults. The (positive) quality is the immediate feeling that one cannot alter *the item* simply by wishing it altered, i.e. simply through an act of thought.

Examples of questions: A: "The lamp is, as you see, grey. Are you able to make it red simply by wishing, 'Now it shall turn red'?" B: "Can you make your doll at home twice as big as it is now, simply by wishing it?" C: "Can you change your mother's ability to cook simply by wishing it?" D: "Can you become a child who cannot ride a bicycle simply by thinking, "Now I cannot ride it?" E: "How big is Donald Duck?" (The child then indicates a size.) "Can you make him twice as big simply by thinking it?" F: "Can you make the piece of candy twice as big as we first thought it to be?"

The remaining two qualities (1 and 7) studied are not really qualities of the experienced *items*, but qualities of the *experiences* of the items. In non-psychotic adults these qualities are only positive in *sensory perceptions*, being negative in *imaginings* of both real and unreal items. This means that they are not, strictly speaking, "qualities of reality". They were included in the present study because, more or less explicitly, they have been considered important in many studies of hallucinations.

Quality 1, the *quality of sensation*, is the immediate feeling that the experience is a sensory perception, and not only a thought, a memory, a fantasy, or some other experience different from a sensory perception.

Useful questions: A: "Can you see the lamp, or do you only think of it?" B: "Your doll at home, can you see it with your eyes right now, or do you only think of it or see it 'in your head'?" C: "Can you actually taste your mother's food in your mouth right now?" D: "Can you, right now, see yourself ride a tricycle, or is it something you know that you can?" E: "Can you see Donald Duck with your eyes right now, just as you saw the lamp a moment ago?" F: "Can you see or taste the candy on the table right now?"

Quality 7, the *quality of involuntarity of the experience*. This is the feeling that it is impossible from one moment to another to alter or dismiss *the experience* simply by wishing it to be altered or dismissed.

Examples of questions: For A-items it was rather difficult to frame the relevant questions concerning this quality in ways which 3–6 yr-old children could clearly understand. The best question seemed to be, "Do you continue to see the lamp as long as you look at it, or can you stop seeing it while you are still looking at it?"

The 3–4 yr-old children often experienced this as being an experiment—and then usually cheated by closing or moving their eyes. So we had to tell them that this was not allowed. B: "Can you stop thinking of your doll at home if you want to think of something else?" C: "Can you stop thinking of your mother's cooking if you want to think of something else?" D: "Can you stop thinking of your ability to hop if you want to think of something else?" E (and F): "Can you stop thinking of Donald Duck (the piece of candy) if you want to think of something else?"

Interviewing technique

Details concerning our technique of interviewing are described elsewhere (Aggernaes *et al.*, 1975a). To handle the problem of suggestion, of leading the children by the formulation of our questions, we often framed a question in different ways to make sure that the child really meant his first answer. We realize, however, that our results may be biased in the direction of too many conventional answers, because polite questioning concerning the reality qualities often implies being leading in this direction.

The examination of 5–6 yr-old children usually lasted 10–15 min, during which time answers to 42 questions (7 qualities for 6 items) were obtained. The interviews of the 3–4 yr-old children lasted up to 45 minutes, especially because these children very often had a lot of things to tell us, besides giving us answers to our questions.

Intertester reliability

Twenty-five 4–6 yr-olds were evaluated by both authors. In 15 out of these all 42 qualities of reality were given identical codings by both R.H. and A.A.; in 9 cases one or two out of the 42 qualities were coded differently, and in 1 case three codings were different. In the 6 simultaneously evaluated 3 yr-olds, 0, 2, 3, 5, 5 and 9, respectively, out of 42 answers were coded differently by the two evaluators. It clearly was more difficult to evaluate the answers from the 3 yr-olds than from the older children. Nevertheless, the hypotheses which are presented below on the basis of A.A.'s results in the total material (48 children) might as well have been based on R.H.'s results in the 31 children evaluated by her.

An illustrative example of the consistency in number of abnormal codings between raters is the following: When two imaginary items are evaluated for qualities 2, 3, 4, and 5, eight codings result. In the 6 simultaneously evaluated 3 yr-olds A.A. gave 6, 3, 8, 1, 6, and 8 abnormal codings, while R.H. gave 6, 3, 8, 1, 8, and 8 abnormal codings, respectively. The total number (out of 42) of abnormal codings for the same 6 children as given by A.A./R.H. were 8/8, 10/10, 9/8, 15/16, 16/18, and 13/17, respectively.

Results (A.A. codings) in the 48 *children*

The qualities 2, 3, 4, *and* 5. The results concerning these qualities are presented in Table 1. It should first be noticed that the distribution of abnormal answers in the age groups and on real and imaginary items is the same for each of these 4 qualities of reality. Abnormal answers are extremely rare on these qualities for real items: in 3 yr-olds, only 3 abnormal answers out of 128 possible answers (4 qualities × 4 items

TABLE 1. NUMBERS OF ABNORMAL QUALITIES OF BEHAVIOURAL RELEVANCE (2), PUBLICNESS (3), OBJECTIVITY (4), AND EXISTENCE (5) IN IMAGINARY AND REAL ITEMS, EXAMINED IN NORMAL 3, 4, 5 AND 6 yr-old CHILDREN

				Age groups		
	Quality No.	3 yr 8 children △ △ △ *D* + *U* = *Ab*	4 yr 15 children *D* + *U* = *Ab*	5 yr 10 children *D* + *U* = *Ab*	6 yr 15 children *D* + *U* = *Ab*	3–6 yr 48 children *D* + *U* = *Ab*
Imaginary	2	0 + 9 = 9	1 + 1 = 2	0	1 + 0 = 1	2 + 10 = 12
items	3	2 + 9 = 11	1 + 2 = 3	0 + 1 = 1	0	3 + 12 = 15
E + F	4	3 + 5 = 8	0 + 3 = 3	1 + 1 = 2	0	4 + 9 = 13
	5	2 + 6 = 8	0 + 2 = 2	0	0	2 + 8 = 10
Totals		7 + 29 = 36	2 + 8 = 10	1 + 2 = 3	1 + 0 = 1	11 + 39 = 50
Real items	2	1 + 0 = 1	0	0	0	1 + 0 = 1
	3	0 + 2 = 2	0	0	0	0 + 2 = 2
A + B +	4	0	0	0	0	0
C + D	5	0	0	0	1 + 0 = 1	1 + 0 = 1
Totals		1 + 2 = 3	0	0	1 + 0 = 1	2 + 2 = 4

△*Ab* means an abnormal quality, i.e. a value of the quality which is practically never found in non-psychotic adults.
D means that the quality was doubtful.
U means that the quality was unconventional, i.e. positive in an imaginary item, or negative in a real item.

× 8 children) were found. The most conspicuous result is that in 3 yr-olds 36 *abnormal answers were found out of* 64 *possible answers* (4 × 2 × 8) *on imaginary items; thus* 56% *of the answers were abnormal.* These abnormal answers were given by 7 of the 8 children in this group. This result cannot be interpreted as being simply due to lack of language skills in the children: The questions concerning imaginery and real items were equally complicated, and nearly no abnormal answers were given concerning the real items. Another possible explanation is that the children might have had less experience with imaginary than with real items. This explanation, however, is contradicted by the fact that abnormal answers were equally frequent concerning the two kinds of imaginary items: For E-items, figures which the children knew beforehand, 20 abnormal answers were found (2 of these were doubtful answers); for F-items, the "giant" pieces of candy which were probably less well-known to the children beforehand, 16 abnormal answers were found (5 of these were doubtful answers). Finally, it should be noted that only 7 of the 36 abnormal answers were doubtful, 29 answers being clearly unconventional ones; and we usually coded an answer as "unconventional" only after some attempts to make the child correct his answer to a conventional one.

The percentages of abnormal answers for qualities 2, 3, 4, and 5 on imaginary items decline in the following way from 3 to 6 yr of age: 56, 8, 4, and 1%. The corresponding percentages for unconventional answers taken separately are 45, 7, 3, and 0%, as can be calculated directly from the results in Table 1.

On this background it seems legitimate to put forward the following hypothesis:

Hypothesis 1: *In normal* 3-*yr-old children there is a pronounced tendency to experience imaginary items as being like real items with regard to the reality qualities of behavioural relevance, publicness, objectivity, and existence. This tendency declines rapidly in the following year and has practically disappeared by the time the children become* 6 *yr old. On the other hand, by the age of three years, children already experience real items as being real with regard to these qualities, in the same way as such items are experienced by non-psychotic adults.*

The quality (8) *of involuntarity of experienced items.* In non-psychotic adults this quality is always positive in relation to real items (Aggernaes *et al.*, 1975a). Such adults know that they cannot change real things or real abilities in themselves or others "simply by wanting them changed". Conversely, if this quality is negative concerning a real item, it means that the person feels that he can change the real world simply through acts of thought, and this is what is usually called *magical thinking*.

With regard to imaginary items, most, but not all, non-psychotic adults feel they can change such items simply by wanting them changed. Responses which indicate such a feeling to be absent with regard to imaginary items indicate a special kind of *rigidity in thinking*.

The results in the children concerning this quality are presented in Table 2. The questions used in examining this quality were somewhat more complicated than the ones used in examining qualities 2, 3, 4, and 5. We feel that at least some of the doubtful codings in the younger age groups can be interpreted as being caused by lack of language skills in the children. However, 34 out of the 48 abnormal codings in Table 2 are clearly unconventional answers, i.e. the answers were clearly felt to indicate not only defective language skills, but "abnormal" modes of

Table 2. Numbers of abnormal qualities in involuntarity (8) of experienced imaginary and real items, examined in normal 3, 4, 5, and 6 yr old children

			Age groups		
	3 yr 8 children	4 yr 15 children	5 yr 10 children	6 yr 15 children	3–6 yr 48 children
	$\overset{\triangle}{D} + \overset{\triangle}{U} = \overset{\triangle}{Ab}$	$D + U = Ab$	$D + U = Ab$	$D + U = Ab$	$D + U = Ab$
Imaginary items E + F	2 + 2 = 4	0 + 5 = 5	1 + 8 = 9	1 + 3 = 4	4 + 18 = 22
Real items A + B + C + D	6 + 11 = 17	3 + 3 = 6	1 + 1 = 2	0 + 1 = 1	10 + 16 = 26

experiencing. Furthermore, an explanation of the results as being simply due to language difficulties is hardly compatible with the fact that the proportion of abnormal codings between imaginary and real items was 4 to 17 in 3 yr-olds, but 13 to 3 in 5–6-yr-olds.

The results for real items: The percentages of abnormal (unconventional plus doubtful) answers in the age groups 3, 4, 5, and 6 years were 53, 10, 5, and 2, respectively. The corresponding percentages for unconventional answers taken separately were 34, 5, 3, and 2. These percentages are based on rather small figures. Nevertheless, they indicate that it is worthwhile to test the following hypothesis in a larger subject material.

Hypothesis 2: *In normal* 3-*yr-old children there usually is a pronounced tendency to magical thinking, a tendency which declines rapidly in the following year, and which has nearly disappeared by the time the children become* 6 *yr old.* Some experienced psychologists and psychiatrists may feel that this is not a hypothesis, but a well-known fact. The authors, nevertheless, feel that the presented results are of some value because they indicate that such *important matters concerning reality testing can be examined with a very simple, fast, direct, and reasonably reliable interview procedure, in children from the age of* 3 *yr.*

The results for imaginary items: From the (rather small) figures in Table 2 the following percentages of abnormal answers can be computed for the age groups 3, 4, 5, and 6 years: 25, 17, 45, and 13%, respectively. The corresponding percentages for unconventional answers taken separately are 13, 17, 40, and 10%.

Hypothesis 3: *The kind of rigidity in the thinking indicated by unconventional answers on this quality with regard to imaginary items seems to reach a peak in* 5-*yr-old children, and thereafter declines rapidly.* This may, of course, be a chance result in the present subject material; but if it is not chance, then it is understandable in the following way; during the 3–5 yr-old period the child realizes that he cannot change the real world simply by his thoughts; this understanding often "overshoots the mark" in the sense that the child even doubts that he can change the imaginary world voluntarily.

The quality (1) *of sensation.* This quality is important if one wants to differentiate between hallucinations and vivid imaginings or thoughts. Table 3 indicates that the 25 children in the 5–6 yr-old group always gave conventional answers to questions about this quality. And only one out of fifteen 4 yr-olds gave only one doubtful answer. The following hypothesis seem to be well-founded:

Hypothesis 4: *From the age of* 4, *normal children practically always can differentiate positive from negative qualities of sensation in their experiences.*

The 11 abnormal answers given by 3 yr-olds indicate that there are, at least linguistically, some difficulties in this group in the differentiation between "seeing with the eyes" and "seeing in the thoughts", and between "tasting with the mouth" and "tasting in the thoughts", etc. The abnormal answers were distributed among 4 of the 8 3-yr-old children.

The quality (7) *of involuntarity of the experience.* As mentioned earlier, it was rather difficult to frame simple questions concerning this quality in relation to A-items, but not in relation to other kinds of experienced items. The 7 doubtful answers given to A-items (Table 3) may simply reflect this difficulty. The 21 abnormal answers to B, C, D, E, and F items were distributed among three 6 yr-olds, two 5 yr-olds, four 4 yr-olds, and three 3 yr-olds. If these abnormal answers are not due to

TABLE 3. NUMBERS OF ABNORMAL QUALITIES OF SENSATION (1) AND QUALITIES OF INVOLUNTARITY (7) OF THE EXPERIENCES, EXAMINED IN NORMAL 3, 4, 5, and 6 yr old CHILDREN

		Age groups				
		3 yr 8 children	4 yr 15 children	5 yr 10 children	6 yr 15 children	3–6 yr 48 children
Quality of	Kind of items*	$\overset{\triangle}{D} + \overset{\triangle}{U} = \overset{\triangle}{Ab}$	$D + U = Ab$	$D + U = Ab$	$D + U = Ab$	$D + U = Ab$
Sensation	A	0	0	0	0	0
	B, C, D, E, and F	5 + 6 = 11	1 + 0 = 1	0	0	6 + 6 = 12
Involuntarity of the experience	A	6 + 0 = 6	1 + 0 = 1	0	0	7 + 0 = 7
	B, C, D, E and F	3 + 3 = 6	4 + 3 = 7	0 + 2 = 2	0 + 6 = 6	7 + 14 = 21

*A items are items experienced in *sensory perceptions;* in non-psychotic adults such items have positive qualities of sensation and of involuntarity of the experience. B, C, D, E and F items are experienced in non-sensory experiences; they are experienced with negative qualities of sensation and of involuntarity of the *experience* by non-psychotic adults.

linguistic difficulties, then they indicate that some of the children in each of the age groups sometimes became so absorbed in some of the investigated items that they felt unable to "change subject" voluntarily, i.e. simply by wanting it.

QUALITATIVE RESULTS OR IMPRESSIONS

Practically all 4–5 yr-old children clearly enjoyed the examination. The authors felt that this enjoyment often was of the kind connected to demonstrating recently acquired abilities. Many of these children further elaborated their answers in ways which clearly indicated that they understood our questions very well.

As mentioned above in relation to the quantitative results, the answers indicate that the 3 yr-old children also understood the majority of our questions. This is in agreement with our impressions during the interviews. However, it was sometimes a problem in this age group to keep the children interested in our questions. Sometimes we got answers which were clearly given in a hurry because the child wanted to tell us a lot of other things. When we realized that an answer was of this kind, we always returned to the question later, to make sure that the hurried answer really expressed the opinion of the child. However, we cannot rule out the possibility that some answers of this kind may have escaped our attention.

RELATION BETWEEN RESULTS AND SOME BACKGROUND VARIABLES

The difference between the 3 yr-olds and the other age groups concerning numbers of abnormal qualities per child is so big that analyses of the relevance of other background variables must be performed separately in these two age groups. The number of 3 yr-olds, however, is so small (8) that further division of this group would not be meaningful. The numbers of abnormal qualities in the 4–6 yr-old children were so small that no statistically significant relations could be found between numbers of abnormal qualities on one hand, and the following variables on the other hand: sex; previous important illnesses; number of months spent in the kindergarten before the examination; number of months spent in day institutions before 3 yr of age. There was a tendency (statistically insignificant) towards more abnormal qualities of experienced reality in children of parents with less education than in children of parents with medium and higher education. Finally, two (statistically insignificant) tendencies were found which were contrary to our expectations: Children with older siblings seemd to have more abnormal qualities than those without older siblings; and children living with both parents seemed to have more abnormal qualities than those living with their mothers, only.

That our results concerning other background variables than age are inconclusive does, of course, not rule out the possibility that these background variables may be found important in studies which are more well suited for such analyses.

DISCUSSION

In the literature about hallucinations a lot of more or less well-defined variables have been used in the evaluation of the "reality value" of hallucinations; Esquirol (1838), Kandinsky (1881), Jaspers (1912, 1965), Morgue (1932), and Lhermitte (1951) should especially be mentioned in this context. However, with regard to many variables it has never been examined whether the majority of psychiatric patients understand questions about them. Jaspers even writes that it is best, in psychopathology, to study a few, but linguistically skilful patients. Therefore it is not surprising that Sedman (1966) found that it was very difficult, if not impossible, for many patients to understand questions about, say, Jaspers' quality of corporeality.

The variables in the present study were selected in studies of chronic schizophrenic patients (Aggernaes, 1972), as being variables which could be understood by, and recorded in, practically all such patients.

In the present study we have used the same kind of questions which Aggernaes and Myschetzky (1975) used in a study of demented patients in clear and disturbed states of consciousness. One advantage of this procedure is that it makes it possible to test hypotheses about regression in a more direct way than is usually done. One short-coming or danger must, however, be kept in mind: The method may not "do justice to" the children, because it cannot be ruled out that children spontaneously differentiate real from unreal in ways which are qualitatively different from the ways implied in the 7 studied qualities of reality.

In this context the most important result in the present study is that our questions seemed to suit the 4–6-yr-old children very well. Concerning 3 yr-olds this conclusion should be modified: If they are not too shy, and if their language development has reached a certain stage, then they understand questions concerning the 7 qualities of reality.

Our study was cross-sectional. The developmental trends expressed in the presented hypotheses are average trends. Whether all normal children reach mature reality testing through a similar fixed succession of stages can only be determined in longitudinal studies.

That the investigational technique is relevant in testing of hypotheses concerning regression is obvious if the present results are compared to Aggernaes and Myschetzky's (1975) results: The pattern of answers from old patients in disturbed states of consciousness was practically the same as from the 3 yr-olds in the present study. Demented patients in clear states of consciousness had a pattern of answers like the 5 yr-olds in the present study.

CONCLUSIONS

The four hypotheses presented in this paper are based on very conspicuous results in our subject material, but need confirmation in other and more representative subject materials. We feel certain, however, that the described qualities of reality and the investigation technique used in the present study can be used practically in child psychology and psychiatry, for the following reasons: (1) In contrast to projective techniques our technique provides a *direct* evaluation or reality testing. (2) The method can be used in *all children* that have arrived at a certain stage of language development. It provides a more general evaluation of reality testing than a method consisting of "searching for hallucinations and delusions". (3) Our preliminary results indicate that the technique can provide rather reliable results concerning some important variables. (4) The technique is not unduly time-consuming.

Whether the technique can be developed into a behaviouristic "laboratory test", we do not know. At present, however, we feel that it is a clinical technique which can only be used in a reliable way if the clinician is skilled in evaluating the co-operation of the child from moment to moment, and in evaluating the language skills of the children so that he can frame his questions in different ways suited for individual children.

SUMMARY

Seven reality qualities, representing different aspects of experienced reality, are defined. Examples are given of questions which are useful in evaluation of these qualities connected to everyday experiences, such as sensory perceptions, thoughts of imaginary items, and thoughts of real objects or real abilities in others or in oneself. A study of 48 preschool children indicates that such children understand the questions used, so that an investigational technique using the defined qualities can provide a simple, direct, and reasonably reliable evaluation of reality testing. Some marked differences are found in reality testing between non-psychotic adults and 3-yr-old normal children.

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CONTEXT AND THE EXPRESSED ETHNIC PREFERENCES OF INFANT SCHOOL CHILDREN

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INTRODUCTION

Lasker (1929) showed a pioneering interest in the development of racial attitudes in children. Since his time there has been a wealth of studies along these lines, particularly in America. Investigations have used a variety of test materials, such as photographs, dolls and line drawings, and the general procedure has been to ask subjects to indicate awareness of differences, self-identifications and preferences from figures with black and white skin. The American work has shown that by the age of 6 yr, children can distinguish figures of different racial origins (e.g. Clark and Clark, 1939, 1947) and that, whether white or Negro themselves, the majority seem to prefer white figures (Horowitz, 1936; Clark and Clark, 1939, 1947; Goodman, 1952; Morland, 1958, 1962). These findings have been generally consistent but there have been some exceptions including Gregor and McPherson (1966) in South Africa and Hraba and Grant (1970) in the U.S.A.

There have been a number of recent studies in Britain along these lines with broadly similar findings. Pushkin (1967) studied white children of 3–7 yr and Milner (1973) focused attention on slightly older black children. Both studies found that subjects tended to prefer white figures. Richardson and Green (1971) observed similar patterns of preferences although these were modified where white figures had obvious physical handicaps. Marsh (1970) also reported characteristic responses from a group of African Negro fostered children and white children with minimal Negro contact. Nevertheless the white 'siblings' of the fostered African children expressed very marked preferences for a black skin.

Some of these latter findings suggest the influence of context upon children's expressed skin colour preferences. The possibility is explored further in this paper. It is hypothesized that infant children may not be consistent in their ethnic 'attitudes' between test situations where choice behaviour is controlled by differing variables. Three different contexts are examined here and some tentative assessment made of the strength of the ethnic category, relative to others, in determining person preferences. This study samples equally from white and black populations and allows simultaneous examination of the two ethnic groups.

METHOD

Subjects

Forty-four children forming four equal sub-groups, divided in terms of race (black skin/white skin) and sex (male/female), were studied. Subjects ranged in age between 6 yr 8 months and 7 yr 9 months and were in the top classes of a multi-racial infants' school in London. All the black children

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were Negroid (of West Indian parentage) and the white children Caucasian (of British or Greek origin). They all spoke fluent English and only one child (a white girl) had been born outside Britain.

Materials

Eight mounted colour half-plate prints were used, comprising portraits of one black boy, one black girl, one white boy, one white girl, one black man, one black woman, one white man and one white woman. Each photograph showed the model standing against a fairly neutral background, although the setting was very slightly different for the photographs of the children and the adults. The children in the photographs were all pupils at a different London multi-racial school. The adults in the photographs were all students at the University of London. Photographs of individuals were used in the test situation to represent a more realistic situation than either dolls or line-drawings. The differences in personal characteristics and clothing were unimportant as this study does not claim to quantify ethnic preferences in the general situation but rather examines whether attitudes towards skin colour *vary with context*.

There were four illustrated stories, two written for girls in which the principal characters were female and two written for boys in which they were male; apart from this difference the two pairs of stories were identical. Of the two basic stories one led to a situation in which a white child received adult approval and a black child disapproval, whereas in the other story the situation was reversed. In both stories approval and disapproval were from a female adult, other than parent, of indeterminate race. Both stories presented the example of approval before that of disapproval. In any one story the two children involved had demonstrated the same objective behaviour, so that the variable was merely approval and disapproval rather than differential action. The children in the stories received approval and criticism *per se*, without the introduction of contrasting moral issues, e.g. in one story the children found two kittens in a park and took them into their respective classes in school: one child was admonished by the teacher, and the other praised.

Procedure

The test situation followed rapport-establishing sessions and a small pilot study.

As each child entered the test situation he/she was asked several questions including: "Who are your best friends in the school?" There was no restriction placed on the number of friends that could be mentioned by subjects, and no differential weighting was attached to first and subsequent choices. Responses provided the *Sociometric Data*.

The *Photographs Test* followed. Each subject was presented, in a random order, with fifteen pairs of photographs. Only one or two of the three variables were included in each comparison, by holding constant the sex factor in comparisons relating to skin colour and age, i.e. these were always presented in terms of male when the subject was a boy and female when a girl, and similarly treating the skin colour and age factors. As each pair of photographs was presented the subject was asked: "Which do you like best?" "Why?" Responses were taken to represent ethnic *preferences* in the specific context.

Subjects were next given the *Sorting Task*. Each was shown the eight photographs at once and asked to group the pictures, putting those that "go together"/"are the same" together. When the photographs had been sorted the child was asked to give his reasons for the groupings.

In the *Stories Test* each subject was read and shown both relevant stories, with the order of presentation balanced across the groups. Following each story the subject was asked to relate briefly what had happened in order to demonstrate understanding and to indicate knowledge of the correspondence between the names and the pictorial representation of the fictional characters involved. The subject was then asked: "Which boy/girl in this story do you like best?" "Why?" Again *preferences* were examined.

Each child was tested individually in a quiet room in the school. Total testing time was 20–30 min per child. Responses were both tape-recorded and hand-recorded. The investigator was female and white.

RESULTS

Ethnic awareness

Data from the Sorting Task indicate that the subjects were aware of ethnic differences. Five basic categories of classification were used by the children in grouping the photographs that were "the same". A child was only scored on classification when he both grouped the pictures and reported appropriately on what he had done. The relative frequencies with which categories of classification were used are shown in Table 1.

TABLE 1. CATEGORIES OF CLASSIFICATION USED BY SUBJECTS IN THE SORTING TASK

Basis of classification	Children ($N = 44$)
White skin/black skin (2 groupings)	19
Male/female (2 groupings)	9
Child/adult (2 groupings)	4
Man/woman/boy/girl (4 groupings)	6
Background details (2 groupings)	4
Other	2

More children sorted on the basis of skin colour than any other variable.

Ethnic preferences

Results from the Photographs Test, the Stories Test and the Sociometric enquiry were analyzed separately and compared. Contrasting patterns of ethnic in-group* and out-group preferences were found in the different test situations, showing that context was crucial in determining extent and direction of ethnic preferences. This is illustrated by Fig. 1, and is confirmed by subsequent analyses.

In the Photographs Test each child made a total of seven choices between white and black figures. The direction of the majority of these choices was calculated for each subject, as shown in Fig. 1. In the total sample, significantly more children made predominantly white than predominantly black choices ($\chi^2 = 20.45$, 1 *d.f.*, $p < 0{\cdot}001$). The lack of a significant difference between the black and white subjects in response pattern (Fisher exact test: $p > 0{\cdot}05$) demonstrates that both subject groups were oriented towards white skin figure preferences in the Photographs Test.

In the Stories Test there were two situations in which subjects were required to choose between a black and a white figure. Table 2 shows the responses made by the subjects. The majority of subjects were not consistent in indicating skin colour preferences. However, of those who were, more of both racial groups chose two figures

TABLE 2. CHOICES OF WHITE AND BLACK FIGURES MADE BY SUBJECTS IN THE STORIES TEST

Subjects	2 black figure choices	1 black and 1 white figure choice	2 white figure choices	
Black males	0	10	1	11
Black females	4	7	0	11
White females	2	5	4	11
White females	0	6	5	11
Total	6	28	10	44

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*Throughout this paper the term in-group is used synonymously with own-group. It is used generally in the context of skin colour but is also applied to sex and age.

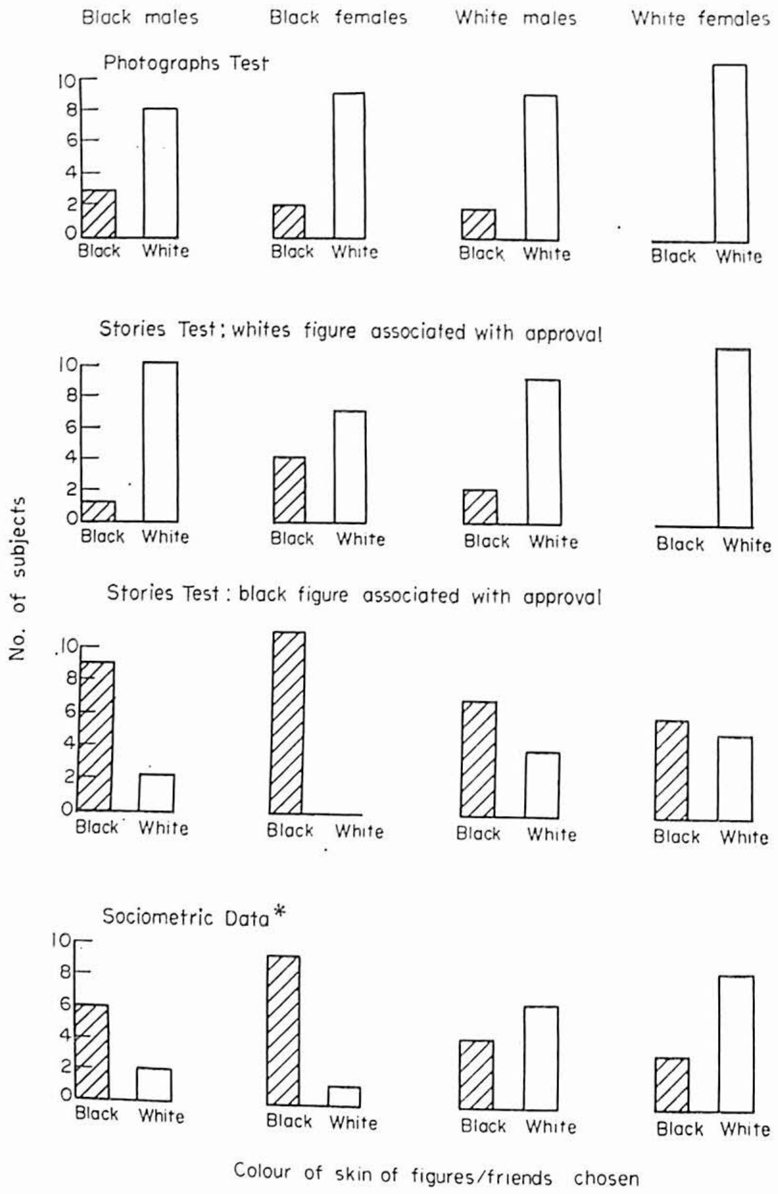

Fig. 1. Apparent skin colour preferences of subjects in the Photographs Test, the two Stories Test situations and in choice of friends.

of their own skin colour. Separate analyses of responses to the two different story contexts were made as recorded in Fig. 1. When the white child gained adult approval, significantly more white than black choices were made by the sample as a whole ($\chi^2 = 20.45$, 1 *d.f.*, $p < 0\cdot001$) and there was no difference between the subject groups in preference patterns (Fisher exact test: $p > 0.05$). By contrast, where it was the black child who received the more favourable treatment, the sample as a whole made significantly more black figure than white figure choices ($\chi^2 = 9.09$, 1 *d.f.*, $p < 0\cdot005$). There was again no significant difference in response pattern between the two ethnic groups (Fisher exact test: $p > 0\cdot05$). In both stories subjects tended to indicate preferences of the 'approved' figures.

A third, and more realistic, indication of ethnic preferences are children's friendship patterns. The Sociometric Data collected in this study are also shown in Fig. 1. Overall there was no tendency for subjects to choose either a majority of white or a majority of black friends ($\chi^2 = 0{\cdot}03$, 1 *d.f.*, $p > 0{\cdot}05$). There was, however, a significant difference in the race of friends chosen by the two subject groups (Fisher exact test: $p < 0{\cdot}025$) with both skin colour groups revealing strong in-group orientation.

In summary, the majority of black subjects—both male and female—demonstrated in-group orientation only in the second story situation (where the black child is associated with approval) and in the choice of their friends, but the majority of white subjects—male and female—made more 'white' choices in all but the same story situation. In general, the female subjects of both ethnic groups showed a greater inclination than the male subjects to make choices of figures with skin colour congruent with their own.

'Skin colour' choices in relation to 'sex' and 'age' choices

In the Photographs Test each subject made fifteen choices between pairs of photographs differing on a maximum of two of the three variables of skin colour (white or black), sex (male or female) and age (child or adult). Overall, subjects effectively discriminated seven times between the two values of each of these three variables. Patterns of expressed preferences are illustrated in Fig. 2. Children appeared more indifferent to some variables than others. For example black males, white males, black females and white females all demonstrated a strong trend towards choosing figures of their own sex. But they less consistently chose photographed figures of a particular skin colour, although all sub-groups expressed an overall preference for white skin figures. The age of a figure appeared to be of small importance in influencing choice behaviour.

'Skin colour' choices in relation to 'approval' choices

In the Stories Test subjects made two choices involving skin colour and approval dimensions. Each subject had to demonstrate consistency of choice over the two situations with respect to *one* of these variables. Responses made are shown in Table 3. Overall more subjects based both choices on the approval than the skin colour dimension although the difference did not reach statistical significance ($\chi^2 = 3{\cdot}27$, 1 *d.f.*, $p > 0{\cdot}05$). However when the choices of the two ethnic sub-groups were examined separately, there was considerable diversity in the findings. Whereas the white subjects were equally divided between those who based both choices on

TABLE 3. DIMENSION MOST INFLUENCING CHOICES OF FIGURES BY SUBJECTS IN THE STORIES TEST

Subjects	Both choices based skin colour	Both choices based on approval/disapproval	
Black males	1	10	11
Black females	4	7	11
White males	6	5	11
White females	5	6	11
Total	16	28	44

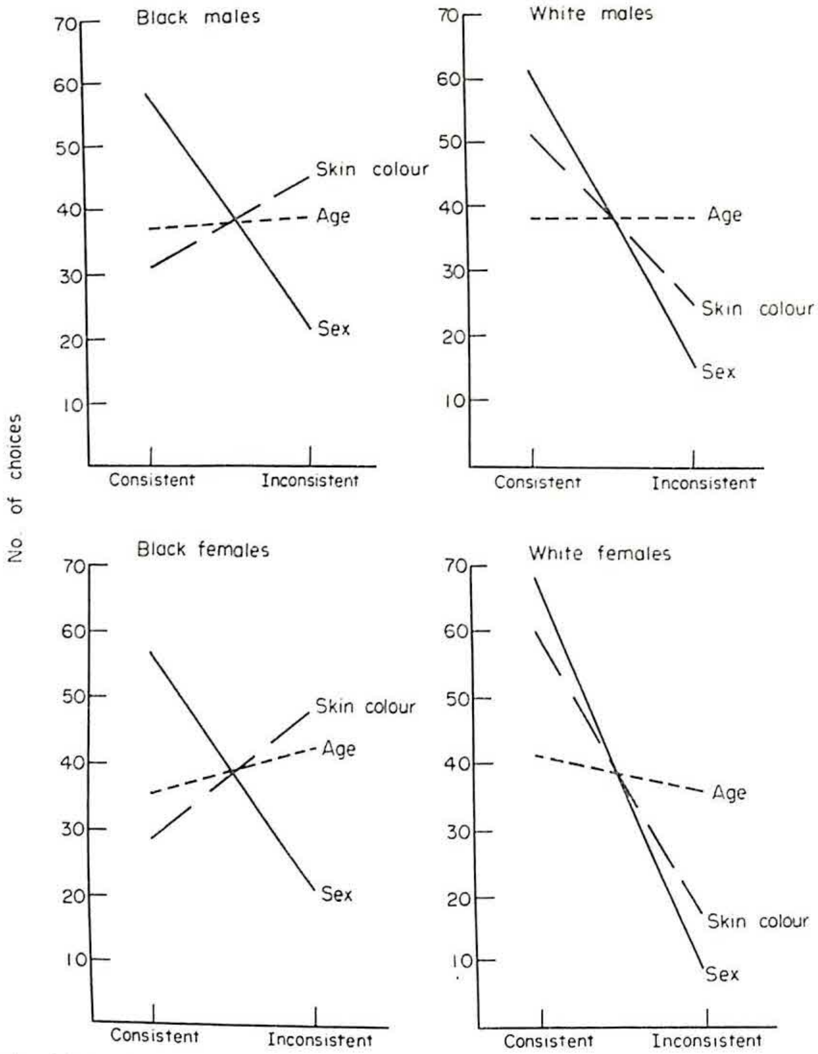

FIG. 2. Analysis of data from the photographs test to show how frequently figures chosen by subjects had characteristics of skin colour, sex and age consistent with their own.

skin colour and those who based both choices on 'approval', significantly more of the black subjects based both preferences on 'approval' than on skin colour (Fisher exact test: $p < 0{\cdot}025$). It can be concluded that the greater preponderance of 'approval'-based choices made by the sample as a whole is due to the response patterns of the black subjects. Race of subject influenced the saliency of the skin colour dimension relative to the approval dimension; black subjects were more inclined to prefer figures associated with approval.

DISCUSSION

The children in this study were aware of racial differences—as indicated by their comments and their responses to the Sorting Task—but they did not express consistent ethnic preferences. In the Photographs Test there was a clear and significant difference between the white and black subjects in their frequencies of in-group skin colour choices, both groups showing an overall preference for white figures. By contrast there was no difference between the two subject groups in the proportion of in-group choices made in the Stories Test: nevertheless when responses to the two stories were analyzed separately there was a marked tendency, particularly by the black children, to prefer the 'approved' figures independent of their skin colour. The Sociometric Data revealed yet a different pattern. Both racial groups chose more friends of their own skin colour.

These contradictory indications of childhood ethnic preferences suggest that skin colour is but one of a number of variables influencing person preferences and that the *context* in which a choice is made is a better predictor of response than the mere inclusion of one specific dimension. This finding is in line with other British work which has similarly indicated that skin colour is not the only determinant of expressed figure preferences (Richardson and Green, 1971; Marsh, 1970). These findings stress the effect of context upon expressed skin colour preferences.

Some variables that may influence choice behaviour have been examined although, as it has been shown that response patterns vary with context, conclusions must be restricted to this specific experimental situation. It was found that sex of figures in the photographs had a much greater influence than skin colour upon subjects' patterns of preferences. This has also been suggested by Stevenson and Stewart (1958). Age of figure had little impact upon person preferences relative to either sex or skin colour. One possible explanation is that a different age is more compatible with an individual's identity than is a different sex or a different race. The child will grow into an adult, but the boy will never become a girl and the West Indian will never become white. In a different test situation 'approval' was more consistently favoured than either a white or a black skin colour by the Negroid children, but not by the Caucasian. One interpretation of this difference is that the black children found the test situation more ambiguous than did the white. They were less consistent in the extent and direction of their ethnic preferences between the different study contexts and this may suggest a conflict between own-group choices and out-group choices in a society with widespread racial discrimination. In the Stories Test ethnic orientation appeared to come under the control of the stronger 'approval' variable for these subjects only. White children may not have felt a similar ambiguity in the test situation. For them a white skin is both congruent with their own identity and socially acceptable: both 'white skin' and 'approval' are straightforwardly acceptable choices. Social acceptance could thus be the crucial determinant of choice behaviour in the Stories Test. A similar explanation would account for the findings of Richardson and Green (1971) that stable patterns of preferences for white skin over dark skin figures by both white and black children were upset when the white figures had physical handicaps. The friendship patterns found in this study are similar to those shown by other sociometric investigations (Rowley, 1968; Durojaiye, 1969). Durojaiye (1969) indicated, however, that in-group orientation was not so strong when children were asked to choose leaders rather than friends. Thus different behavioural contexts may yield different patterns of skin colour choices.

These data point to the difficulty of generalizing from ethnic preferences observed in test situations. As both racial groups showed in-group orientation in some contexts and out-group orientation in others, the apparent preference of white or black skin colour in one situation does not necessarily mean the rejection of the other. An attempt to quantify children's ethnic preferences would thus appear to be misdirected. The nature of the situation—including, probably, the race of the experimenter—and the other variables available on which choices can be based, will influence the extent and direction of racial orientation. All the evidence leads to the conclusion that context is an important determinant of ethnic preferences expressed by infant school children.

SUMMARY

Forty-four children—white and black, boys and girls—from the top classes of a London multi-racial infants' school were given several tests designed to reveal racial awareness and racial preferences. It was found that the children were aware of ethnic differences but that the extent and direction of their expressed ethnic preferences were strongly influenced by the situational context and by the competing variables upon which their choices of figures could alternatively be based.

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ANNOTATIONS

CHILDRENS DRAWINGS – COGNITIVE ASPECTS

Norman Freeman*

INTRODUCTION

There are many deservedly obscure academic works. Would it be worthwhile adding to this number by encouraging a Ph.D. student to write a psychological treatise on Some Aspects of Children's Drawings of Knees? Perhaps not; yet what else would be a rational response to the suggestion "Emphasis on the knees is said to indicate homosexual impulses" (Schildkrout *et al.*, 1972, p. 91, interpretation of Fig. 121)? Claims for the privileged symptomatic status of knees should either be validated or ignored.

Reliability criteria are relatively unhelpful. For all we know, there may well be a reliable correlation between (a) some criterion of the channelling of bisexuality into a dominant homosexual mode and (b) a criterion for knee-differentiation. But reliability and standardisation cannot ever be a substitute for validation (though, of course, they may sometimes help draw attention to the putative need for validation). Much of the interpretative work on children's drawing falls back onto reliability and standardisation arguments as evidence for its value. Without validation it cannot be evaluated; that is, no reasonable value can be placed upon it, and it cannot acquire the status of evidence i.e. the ability to discriminate between hypotheses. Nor can validation be conjured up out of the air by intercorrelating many fragments of reliable and standardised data; some people's manifest failure to grasp that most basic point is still the bane of psychometrics.

This brief selective review has been commissioned to put a cognitive point of view, and to show the status of cognitive studies as validation-procedures, as much by stating what they cannot yet do as by outlining some successes. Such studies are extremely limited. They are selected so as to have little reference to the passions and the operation of defence-mechanisms. Thus they cannot even pretend to act in a backroom service capacity for psychiatry. But what they can do is to provide rules of evidence for psychiatric and normative researchers to match against their own; and to show, where the interests of cognitive psychologists and psychiatrists overlap, whether some aspects of drawing can be given a valid status which may make them quite inappropriate as a basis for psychiatric inference.

In the area of drawing, the experimental study of cognition is based upon models which deal with mental organisation. One of the central concerns is how children employ various strategies for retrieving the information which they have previously stored in a structured way, in order to achieve a coherent output; and what rules they follow when the output fails to attain its goal (the implementation of correction rules). This necessarily involves experimental intervention to support the contention that one cannot reliably make inferences about production-processes simply by inspection of finished products. To confine oneself to a spectator's role, is to debar oneself from understanding how children deal with problems of *linear ordering* of elements to produce a drawing (Goodnow and Friedman, 1972; Freeman, 1975), how performance differs when precise cues are given to the child to summon up graphic elements (Golomb, 1973), what biasses exist in non-representational drawing which may possibly carry over into representation (Connolly and Elliott, 1972), how some graphic relations may unwittingly be "normalised" by the child (Ibbottson and Bryant, 1976), etc. These matters will be dealt with below. For the moment, the critical issue is that since we do not yet properly understand the *task-demands* involved in drawing any particular combination of relationships, we do not know the appropriate units of analysis to apply to the finished product. That is really the heart of the matter. How do children get organised to solve the problems of representation? Which variant drawings are errors whereby the child knows what to do but cannot do it; and which result from perfectly consistent, though non-adult, rules (Goodnow and Friedman, 1972)?

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INTERPRETATION : GLOBAL AND SPECIFIC

Some drawings can be treated as though they were declarative statements which are limited only by the child's level of cognitive development. There has been a long popular tradition of study of narrative drawings. A few experimental studies of "communicative competence" do exist, which are devoted to the question of how efficiently children can communicate graphically, and the conditions which enhance or depress their performance. Unfortunately there is no room to discuss these; for they would need a review on "children's drawings - communication and semantics". This certainly forms a part of cognition (see Korzenik, 1975), but we are concerned with the "core" of the cognitive approach. Just one question is worth raising here. Let us suppose that a Piagetian "mental image" is faithfully mapped by the child onto the paper, and that he draws the human figure differently at school compared within his home territory. Does that mean that he has two mental images, one of which serves him at school and one at home? Luquet (1927) called this the *duplicate de types* problem, and it is discussed rather crudely by Freeman (1972). One answer to the problem is that one cannot assume that a drawing is a simple projection of a mental image, for this is to underplay the role of social priming and the labour involved in the processes of production. A lack of emphasis on production-problems, contextual cueing and cultural stereotypy, mars the work of Piaget and Inhelder (1969) on drawing; which has the advantage of freeing psychologists from Piaget's burdensome theory to some extent, but has the disadvantage that they are deprived of Piaget's brilliant talent for phenomenon-spotting. The work we shall discuss does not readily tie in with Piagetian theory at the moment.

The other approach to interpretation is to regard drawings as privileged betrayal - the child shows symptoms of his internal state. One can either make global judgements or have a reference list of discrete signs against which to check the drawing. The weakness of global judgements of the composition as a whole is that they tend to lead to grossly-imprecise global conclusions. Moreover, they tend to be based on unarticulated adult aesthetic theories. This leaves ample room for dispute; thus Schildkrout *et al.* (1972) say that their drawing No. 9 has rather a stiff posture; so it may have as a drawing, but *a real person* in that position, with her knees forward, could equally well be showing a graceful and conventional component of lordosis. Semiotic studies can give evidence on such problems. Finally, there are no agreed criteria for *depth* of global interpretation. Thus Schildkrout *et al.* (1972) say (probably correctly) that this drawing No. 12 shows no anxiety-signs; but the point is that the drawing is so tediously conventional that it would quite easily indicate the operation of a most effective defence-mechanism. Obviously only a psychoanalytic interview could really elucidate that. Caught between psychoanalysis and experimental psychology, those making global judgements have been unable to formalise their often brilliant intuitions into acceptable rules of evidence for validation.

The alternative approach to interpretation is by detail - the "knees problem" with which we began. In order to experiment on knee-drawings, it would be necessary to make a good case that insertion of lines within a limb is an important graphic decision. No-one has ever presented a case either that knees are a dominant aspect of planning a drawing, nor that they are subsidiary in the way required for proper parapraxes. Thus while it may be tempting to regard knees or belt-buckles as revelatory, they have not yet been rigorously assigned the status either of signs or of symbols. This weakness vitiates much of the line stemming from Machover's (1949) work (see Swensen, 1957, for the problems raised for Machover).

First, her dictum that any degree or type of shading is considered an expression of anxiety has been very influential. Jeffrey (1964) reports the use of this dictum in a court case, which correctly baffled the learned counsel. The psychologist concerned was indifferent to the multiple uses of shading and believed that dark hair and dark shoes necessarily indicated "anxiety about sexual problems". Thus drawings are apparently to be decoded as bundles of specific features, each one of which has a direct and unitary function. For an experimental psychologist, one of the important aspects of shading is its multiplicity of uses (to enhance or to conceal contours and specific features, to increase or decrease brightness, contrast, etc); another is the fact that shading can arise at almost any point in the drawing (during it or afterwards as embellishment). These are aspects of *learning to draw*: it is impossible, in Machover's (1949) account, to specify *any* learning-processes involved in the work of production. The fact that subjects may draw in a stereotyped manner (i.e. that certain aspects of their drawing may show high reliability) tells one nothing at all about the processes which generated the "surface-structure" of the drawing, unless one can (a) probe the condition under which the subjects will produce variant forms and (b) observe what constellations of varients emerge. This probing is one of the basic procedures of cognitive psychology. To understand drawing-generation it is essential to specify the status of the different possible relationships between the details, and Machover's (1949) line of considering the details separately, precisely forbids this. To sum up, the basic defect is that Machover is weak on problems of organisation, arguing, in effect, that any comparable products must *a priori* reflect comparable production mechanisms, and that aspects of a drawing are *direct* reflections of underlying homologous entities. The internal state is simply mapped onto the drawing. How could anyone who did not feel "marked mother dependence" ever experiment with drawing buttons (Machover, 1949, p. 139), or experiment with shading whilst non-anxious? The nearest that Machover comes to recognising the difficulties is to say that children often show contradictory projections. But her method does not allow her to utilise that insight.

NORMATIVE STUDIES AND CONCEPTUAL ACCOUNTS

It is more common to come across armless drawings than legless ones. There have been many surveys which tabulate the differential relative frequency of body parts. To a cognitive psychologist this immediately suggests a line of research. It might be worth using frequency as an index of difficulty, and hypothesise that arms are more difficult to draw than legs in some sense. Then we can start to ask, when they draw both sets of limbs, do children typically draw legs before arms, whether armless figures differ in any other respect from figures with arms, and what the conditions are which will generally elicit arms in a drawing. In short, we would design a model which uses relative frequency as one starting point, and studies the relations between the body-parts.

One might have thought that fifty years of interest in differential frequency would have generated that kind of research, but in fact that is scarcely the case. People working in that area have often simply compiled feature-counts of what children of various ages can be expected to produce on demand, and used the drawings as instant "tests", with scoring systems adjusted to provide normative data. In fact, the rationale is as crude as that inspiring Machovers' work, only instead of drawings being cut up into arbitrary units to reflect internal states, they are cut up to reflect putative age-norms. Thus it should come as no surprise, that people like Harris (1963), when they come to the problem of validation, have to argue, like Machover, that specific features reflect specific internal units. Harris talks of "conceptual maturity" (p. 8), others avoid the issue of explanation entirely (e.g. Kennedy and Lindner, 1964).

It is difficult to know how to make a succint critism of such a peculiar explanation as "conceptual maturity". The concept of maturation is one of the most controversial concepts in developmental psychology (rightly so), and authors such as Piaget who deal with conceptual development lay great stress on problems of mental *organisation*. To read Goodenough (1926), one would not really understand how drawings are organisations of things involving real compositional *choices*, intended to be multi-dimensionally representational and open to great intra-cultural variation as well as stereotypy. If a child fails to put a sharp bend in an arm, one should not necessarily conclude that he or she has an immature concept of an elbow. He may have a mode of stylisation which is *in advance* of his fellows. One would want to probe the conditions under which he would produce an elbow. Thus Golomb (1973) simply dictates the body-parts in order to her children, and they draw beautifully. What that must mean is that the conceptual entries and executive programmes were available in the children's minds, but that the children did not automatically *access* them for themselves. Both Harris (1963) and Goodenough (1926) confuse availability and accessibility.

A human-figure drawing is an assemblage of features which can only be drawn one at a time. An analogy might make the problem clearer. Suppose we ask a child to count, and he misses out the number "11". One does not jump to the conclusion that he has some immature concept of "11"; instead we might wonder about his computational rules and programmes. Drawing is clearly rule-guided (Goodnow, 1972), and cognitive psychologists want to understand the nature of the rules. No theory which relies on "one-off" examples of performance whence to infer ability, and which is based on a model whereby one graphic unit is the unmediated expression of one concept, can possibly help us much.

Another example of an overhasty decoding of drawings into conceptual factors comes from Piaget and Inhelder's (1966) famous demonstration that children may draw the liquid in a tilted bottle as being perpendicular to the sides of the bottle instead of parallel to the ground (incidentally, many undergraduates have a tendency that way too). This may be a result of a failure to grasp the characteristics of liquids. However, such normalisation errors are very general: one commonly sees drawings of houses in which the chimney is made perpendicular to the roof. This may be a result of an immature concept of chimneyness or whatever. Ibbotson and Bryant (1976) point out that such experiments confound many factors. They employ an excellent experimental procedure. The meaningfulness of the stimuli is removed, and the child is required to copy a two-line configuration shown to them, by drawing a line at an angle to a baseline which is pre-drawn on the page. With a tilted baseline, the children normalize the angle to the perpendicular. Thus it does not need liquid or chimneys to elicit normalisation, and the tilted baseline of the bottle or roof will be liable to elicit normalisation whatever the child knows about liquids or chimneys. One condition was resistant to normalisation, and that was when the baseline was vertical (the "vertical effect"). Butterworth tentatively suggests that the vertical effect is due to the coincidence of the child's internal axis with the external framework provided. If that idea has any merit, and only further experimentation can tell us that, it may provide a more sophisticated way of discussing how general "postural propensities" (Gesell and Ames, 1946) interact with configurational orientation in drawing.

PRODUCTION PROBLEMS

It is becoming quite clear that even the simplest representational drawing requires an immensely complex mental apparatus to generate it. For instance, although young children can readily generate vertical straight lines, probably because of the human upright posture and the way in which the skeleton is articulated (see Connolly and Elliott, 1972), it is less easy to generate horizontals; and diagonals are so difficult that Olson (1970) wrote a monograph on the subject without even appearing to exhaust the problem. Such work, far from being the equivalent of a treatise on knees, is basic, in the most valuable sense of the term, to our understanding of both gross and fine spatiotemporal relations in the child's mode of operation. Thus adults commonly talk of a child being given a blank sheet of paper on which to express itself; on the contrary it is difficult to think of anything less blank than the sharply-defined sides of the paper, and it seems now to be established by people like Berman and her collaborators that the sides of the page exert a great influence on drawing, probably well into middle childhood. Bryant (1974) has shown how general "framework effects" can be picked up in many situations, and has used them as part of a model which is a competitor to some common Piagetian views on the child's deductive-inferential ability.

The most useful research method is to keep tasks simple enough, enabling the children to make clear and simple responses, so that response-shifts can unambiguously be observed. Now, many spontaneous drawings just are not clear enough to be useful as they stand. Consider the common "tadpole man" which seems to be a head with four limbs. It is conceivable that the children intend to attach the limbs to head; perhaps the head is seen to be the focus of personal power or whatever. On the other hand it is equally likely that the bulk of the figure is an undifferentiated head-trunk with the arms appropriately put on the implicit trunk. Rather than embark on arguing about relative plausibility, one would want to strip down the problem to its behavioural essentials: if the kernel of the dispute is children's tendency to localize arms on head or trunk, then we should give them the choice and see which they opt for. Thus Freeman (1975) provided children with a pre-drawn set of heads and trunks in which the head-trunk ratio varied on a linear scale from small head/large trunk to large head/small trunk, the values of the head-trunk ratio lying within the natural range produced spontaneously by pre-school children. The children were asked to complete the figure. The tadpole-drawers lawfully attached the arms to whichever was the larger body-segment: the "body-proportion" effect. Thus Freeman argued that neither of the above hypotheses was correct, the children were not operating according to a reliable rule "attach arms to head" or "attach arms to trunk", but were being dominated in their arm-localisation by configurational constraints - namely the head-trunk ratio. Further research (Freeman, 1977) showed that the body-proportion effect was unaffected by requiring the children to draw a nose or navel on the figure before arms, which they managed correctly, thus establishing that the effect was not due to the large head being misclassified as the trunk, nor to an inability to put the pen on the trunk (when a navel was drawn). The tadpole man can be interpreted as the most extreme positive head-trunk ratio obtainable. The next question is why the trunk should be omitted in the spontaneous drawing. From observation of the order of drawing, Freeman suggested that the children were holding in their minds the pairs head-trunk and legs-arms, and accessing the first unit of each pair, thus producing a head and legs which form the basis for the tadpole figure. The research therefore begins to elucidate drawing-behaviour associated with the queer tadpole-figure, and provides initial evidence for a model which would produce that particular variant form without using concepts like "fixation on the head as the centre of the personality". Instead, attention is focussed on the concept of production-problems, that is, the compositional difficulties inherent in this most difficult spatial task.

CONCLUSIONS : COGNITIVE PROCESSES

In order to understand what the task-demands of drawing really are, it is essential to remove planning-problems which might obscure the children's intentions. Common techniques, such as drawing-completion, are most useful, and can be extended to children in the pre-drawing stage, since one only asks for a small aspect of the drawing to be produced and provides contextual cues sufficient to encourage the children. One can build up a story of how abilities gradually unfold from the initial skill at confining scribbles to one particular area on the page (even apes will spontaneously concentrate their scribbles on a pre-drawn triangle) to the skills involved in hunting down localisation-cues to where to put lines, until finally the children can produce these cues for themselves. Typical evidence is on the influence of the page and framework effects (Ibbotson and Bryant,1976; Goodnow, 1972) and the intra-figure configurational influences (Freeman). Using experimental evidence it should be possible to pose three questions in an answerable form. What abilities are developing in terms of graphic control? What sort of discontinuity is involved in leaps such as those from scribble to tadpole and tadpole to conventional man? What sort of errors remain a constant temptation even through such great discontinuity? A model that would encompass these questions would be, by definition, a cognitive model. Perhaps one day it will be possible to take up the problem of knees?

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ANNOTATIONS

PRE – VERBAL COMMUNICATION

Anthony J. Costello*

Any discussion of pre-verbal communication is circumscribed by the concept of communication that is used. For example, Murphy, Murphy and Newcomb wrote in 1937

> "The newborn infant may smile, but this smile is no more social than a Babinski reflex . . . . neither the smiling nor the crying nor any of the multitudinous combinations of skeletal behaviour that appear in his repertory are specifically social responses."

This is an example of the curiously one sided view of social behaviour in early development that prevailed until the last decade, in which communication between infant and adult was assessed by the infant's response. If instead one examines the behaviour of the adult in the dyad, it is clear that much of the adult behaviour is contingent on that of the infant. Infant smiling, crying, restlessness all evoke responses from the adult, which for a particular infant-adult pair are often very specific to the infant behaviour. In the broadest sense communication is certainly occurring. The model of communication by language is misleading, since the information content of language may be of a totally different order. Even communication within less flexibly adapted species than man may still be comparatively elaborate and high in information content. If there is a change in adult behaviour which follows a change in infant behaviour, and which is dependent on the infant behaviour, then there is transfer of information, and this is the essence of communication.

The questions about pre-verbal communication in man should by now be directed to the nature of the information conveyed, and the methods and efficiency of information transfer. The answers to these questions are related to the more general problems of the adaptive significance of pre-verbal communication, and the relationship of pre-verbal communication to verbal communication. One of man's most striking characteristics is the development of very elaborate techniques of information transfer between individuals and between groups, and pre-verbal communication has to be considered in this context.

Human infants are unusually vulnerable, dependent on adults for much longer and to a greater extent than most species. Claude Bernard's famous aphorism

> "La fixite du milieu interieur est la condition de la vie libre, independante"

needs a corollary for infancy - the constancy of the external environment is the condition for dependent life. The adult's timing of feeds, assistance with elimination, and protection from the environment have to coincide with the infant's needs. The most obvious signalling by the infant is crying. Crying, though it has been shown to be modulated by infant state from birth (Wasz-Hockert *et al.*, 1968), appears to have only modest information content, and without contextual clues it appears difficult for the observer to know the reason for crying (Sherman, 1927; Lynip, 1951; Wasz-Hockert *et al.*, 1968). This is an area of research which might repay investigation with the more sophisticated techniques now available.

We do know that individual differences in the duration and frequency of crying are related to caretaker behaviour (Bell and Ainsworth, 1972). Although caretaker behaviour accounts for only a small part of the variance in crying, it seems clear that communication in a particular episode is affected by the long term characteristics of communication between infant and caretaker (e.g. Appell and David, 1965). One might expect that if crying were a simple signal the content and duration of each episode would be affected by the efficiency of communication over longer periods. The finding that the frequency and duration of crying are affected not so much by the latency or correct selection of caretaker response, as by general caretaker style, argues that the information content of crying is fairly low: its significance lies more in the structuring of the relationship between infant and adult than in the determination of specific interaction.

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Similar considerations apply to the less strident aspects of infant communication. Interlocking of gaze, smiling and motor activities are all important aspects of infant communication. Some behaviours clearly communicate the state of the baby; from birth smiling is most commonly seen when the baby is fed and comfortable, and between the 4th and the 26th week social smiling becomes established. Apart from providing a general index of personal condition the information content of smiling is related much more closely to the control of a specific class of behaviour between infant and caretaker than to infant homeostasis. This is the behaviour Watson (1966) has termed "contingency games." The emphasis on the relationship of social behaviour to operant control by reward, rather than the reduction of primary drive, has perhaps concealed the nature of the information transfer which occurs in such behaviour. In attempting to understand infant behaviour it is too easy to concentrate on the mechanisms by which he satisfies his demands of hunger and thirst and his need for warmth, and to overlook the no less essential needs for interaction. Interactions are maintained by information transfer, and it is the communication aspect of this which is probably the most important element in permitting normal development. The argument on the importance of stimulation has tended to ignore the contingent nature of communication, and has lead to such nonsenses as muzak and mobiles for infants in isolation, which pattern the environment but transfer virtually no information.

The need for contingent interaction clearly cannot be classified with the so called "primary drives," but is nevertheless critical to development, and may have even greater significance if Hubel and Weisel's (1970) work on the relationship of neuronal development to sensory input provides a general model for brain maturation. In contrast to these rather general aspects of infant communication, differentiation between the modalities does not seem so important.

It is not clear that there is much of what may be called channel specificity in spontaneously occurring contingency games. Rather there is great redundancy. Facial expression, eye movement, bodily activity and babbling are all used simultaneously. However, some patterning of the content of interaction seems to be built into the human infant, and possibly into the caretaking adult. The primacy of the face as a stimulus for the infant is well known from the work of Fantz and others. Recent work suggests that human voice characteristics, and even the specific characteristics of the mother's voice, are recognised at a very early age indeed (Mills and Melhuish, 1974) which tempts one to suppose that the infant brain is structured in such a way that these signals acquire greater significance than the rest of the environment. Similarly, Condon and Sander (1974) have recently claimed to show close synchrony of infant changes in movement with the articulated structure of adult speech, even on the first day of life. Like much of the work which appears to show more complex abilities both in perception and performance by infants than was previously recognised, these studies involve a taxing methodology and have to be replicated. Each element that these and other studies provide is hard to assess in isolation, but taken together offer convincing support for the belief that the infant is not simply endowed with undifferentiated learning capacity, but that the probabilities of learning certain behaviours are significantly greater than of others. This argues for a genetic basis for at least some human infant behaviour, which in turn raises the question of the advantage conferred by such behaviour. The survival value of communicative ability which relates to primary needs is clear enough. However, the information actually conveyed is so non-specific that it seems unlikely that this is a major adaptive feature. The cheeping and mouth display with which a chick attracts and initiates feeding by an adult is a much more specific communication than crying, with a greater information content.

In an early formulation (1958) Bowlby argued that the infant's repertoire of social behaviour is primarily of importance in determining maternal attachment and maintaining her proximity.

Though it is difficult to argue from the abnormal this seems an inadequate explanation for the feelings mothers have for children unable to display this repertoire, for example the congenitally blind, or autistic. There is some evidence which suggests that initial attachment is determined by non specific experience of the infant (Klaus, *et al.*, 1972) and it is the maintenance of attachment which is difficult. The concept of a "releaser" which Bowlby used does not seem entirely adequate. If in fact it is the contigent interaction which is needed to maintain attachment the interaction itself must be self maintaining. In other words, both infant and caretaker need to find the process rewarding. Again, the work of Fraiberg (1974) with blind children suggests that it is the complexity of the response, and the increasingly specific relationship between stimulus from either partner and the response from the other which is rewarding. There are striking parallels between this early communication and the valued aspects of communication by language. The richness and precision of meaning conveyed are among the most important factors which a critic uses in judging the quality of literary achievement.

In summary, the immediate survival value of communication by infants, maintaining food and safety and protection may be of less importance than the survival value of finding communication itself rewarding. This gives a rationale to the disastrous long term effects of inadequate communication in infancy and early childhood, and a justification (if any is needed) for concentrating on this aspect of infant care. There are many steps in this argument which need to be more securely established, and much of the evidence cannot be presented in a brief article, but it provides a framework for understanding infant and caretaker behaviour which has been difficult to find.

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BOOK REVIEWS

The Battered Child (2nd Edition). Edited by RAY E. HELFER and C. HENRY KEMPE. University of Chicago Press, Chicago, 1974. pp. xvii + 262. £7.50.

THE FIRST edition of this work was published in 1968 at a time when literature about non-accidental injury to children was sparse and there were only a few articles and no books on the subject published in this country. *The Battered Child* served as a source book and inspiration to workers in all the helping professions and in particular to the NSPCC whose research team modelled much of their treatment of these desperate families on the theory and therapy described by the psycho-analysts Steele and Pollock and the social worker Elizabeth Davoren. The second edition updates some aspects which will be of interest to American readers, in particular the chapter on reporting laws.

The book is divided into four sections, edited as before by two eminent American paediatricians, Kempe and Helfer, who have done so much to awaken world opinion to the problems of non-accidental injury to children. It is divided into four sections. Part 1, little changed from the earlier edition, is a well researched and grim account of the history of child abuse and infanticide. The author points out that in 1870 London records show that out of 3926 children under the age of 5 yr who died of violence or accidents 319 were clear cases of child abuse. Unfortunately the review does not attempt an analysis of the problem in relation to cultural, philosophical or sociological changes in attitudes to children, nor in the context of changes in the pattern of infant mortality and morbidity. It is likely that many babies who are injured now would have died because of prematurity or other disabilities a few decades ago.

Part 2 examines the medical aspects of non-accidental injury and other forms of child abuse. The excellent, lucid chapter by Helfer gives helpful examples of ways paediatricians can talk to the parents which avoid mystifying, accusing or antagonising them and emphasies the crucial importance of the initial interviews. But the chapter is unchanged since it was first published, and there is no mention for example, of whip lash injuries caused by shaking a baby and the references quoted are from the early 1960s. The reader will also need to bear in mind the different agency responsibilities in Great Britain, and in particular the role of the social service departments and their statutory responsibility for child protection. The chapter on the pathology of child abuse contains a new paragraph on the role of the pathologist in court which will be useful to American readers.

The third section consists of the two classic and beautifully written chapters by the two psycho-analysts and the social worker. The section is misnamed Psychiatric and Social Aspects. Social aspects of the disorder are barely discussed, and indeed Steel and Pollock state that social, economic and demographic factors are somewhat irrelevant to the actual act of child beating. This is not in accord with parent's account of events leading up to their violent acts, nor with what we already know about the role of stress and crisis in relation to other disorders. Because the work has not been updated it contains no references to the considerable psychiatric and social work literature published in the last 6 yr and again all the references are from work written a decade or more ago. Although the psycho-dynamic account of child abuse and its treatment is brilliantly written one is left with the lingering fear that inexperienced practitioners may be misled into thinking that the outcome in all cases is more hopeful than our present knowledge indicates, particularly in relation to parents who are psychotic, suffering from a severe character disorder and suffering unusual stress.

It is a pity that Professor Kempe has not contributed a chapter to this edition. His extensive knowledge of cultural and legal complexities, his understanding in relation to the awesome decisions which have to be made about the child's future and his trenchent views on treatment, in particular on the use of volunteers would have helped to balance the whole book. His knowledge of conditions in Britain would have enabled him to contribute to the solution of dilemmas facing the different agencies involved in cases.

It is also sad to find that the chapter by Gil has not been included in this volume. Gil believes that poverty and other forms of social deprivation contribute in no small measure to child abuse, and that cultural sanction of physical punishment of children in family life and institutions add to the danger of complacent attitudes to serious ill treatment.

The final section on legal aspects reviews the American legislation in relation to court proceedings, mandatory reporting and central registers and is useful in view of the current concerns in Britain about these matters. It is helpful to read this section in conjunction with Appendix C which is a reprint of the Report of the New York Assembly Select Committee on Child Abuse (1972). This Committee was set up in response to New York's own Maria Colwell, the case of a child called Roxanne who died in 1969. The report contains disquieting comments, for example in spite of mandatory reporting laws in existence since 1964 many cases of child abuse were not reported to the authorities, mainly because of the failure to educate professionals to recognise cases and to take appropriate action to protect the child. Readers may wish to obtain this Report separately. It is worth studying.

Finally although the book is entitled *The Battered Child* there is little mention of what happens to the children except in the form of statistical data on mortality and physical morbidity. Recent research indicates some of the emotional, cognitive and physical dangers to some children who grow up in a family they rightly perceive as threatening.

The stated aim of this book is to present a compilation of views from experience in respective fields to illustrate more recent developments in the area of child abuse. This aim has only been partially achieved—readers who possess the first edition may be wise to make do with this and await publication of the more recent work of American experts, including of course that of the writers who contributed to this volume.

JOAN COURT

How Children Grow—1: From Conception to Two. MARK LOVELL. Routledge & Kegan Paul, London, 1975. pp. x + 130. £2.95.

"YET ANOTHER book on Child Care!" begins the foreword by the Paediatrician Hugh Jolly but he goes on to explain that there cannot be too many worthwhile books on this subject. In this, the first of a series of three books covering in all the years from conception to adulthood, there is a mixture of developmental psychology, paediatric information, advice on childrearing and anecdotes about individual children and even two birthday parties! This short book fails to be really worthwhile because it tries to cover too many areas and includes much unsubstantiated advice to parents.

The author sets out to give the facts on development from conception to two years and from these extrapolates to give advice on child-rearing. He deals well with physical, cognitive and conative development and is on firm ground when, on the basis of this he, for example gives advice on interacting with babies in ways that will help them develop their skills and language. But on emotional and personality development, he is on much flimsier ground. He summarises Freud's theories on psychosexual development, mentions Eysenck's introversion and extraversion but fails to cover other work or theories. He mentions nothing about temperamental characteristics. From this, as the author admits, cursory look at the theory of emotional development, he goes on to give a wealth of advice on childrearing for which there is no real evidence, e.g. "*her methods* (mother's early toilet training of 'Jane'), *however, are likely to have affected Jane's personality. . . .*"

Generally the author's attitude and advice fits in well with current middle-class childrearing practices—encouraging breast feeding, pick up baby when he or she cries, leave toilet training until the child indicates readiness, do not use physical punishment, masturbation is normal etc. . . . In one respect he is remarkably unmodern; father is not mentioned till p. 56, not even in the chapter on conception! Some of the medical facts in this first chapter are also incorrect. Presumably this book is aimed at the more sophisticated parents who are seeking detailed information on the development of their young child and who want to base their child-rearing practices on the available evidence. There are some tit-bits which might help some such parents assure themselves that their children are exceptionally intelligent, e.g. if the child sleeps little, concentrates well and talks early. But, otherwise, this book would be a disappointment to such parents. If only it were a book which just dealt with how children grow, the author's own field, and which resisted counselling on child-rearing. Nothing new is known in this field and we all, parents and professionals alike, still have only the vaguest notion of what constitutes good child-rearing practices.

CLAIRE STURGE

The Residential Psychiatric Treatment of Children. Edited by PHILIP BARKER. Crosby Lockwood Staples, London, 1974. pp. xiii + 354. £7.50.

THIS book presents a lively picture of the activities in child psychiatric units up and down the country. In assembling a collection of chapters by child psychiatrists about their in-patient work, Dr. Barker has done us a considerable service.

He begins with an account of the literature and a general overview. While in the U.S.A. psychiatric in-patient services for post-encephalitic children were established in the 1920s, the first British psychiatric in-patient unit for children was opened at the Maudsley Hospital in 1946. In 1957 there were eleven such units with beds for 311 children and by 1970 52 units had been established, accommodating 990 in- and 169 day-patients.

The major part of the book consists of chapters in which each contributor describes both his own unit and also a particular diagnostic group of children who may need in-patient treatment. Dr. Wardle, Dr. Hersov and Professor Pond report on general in-patient units and discuss the special problems and needs of delinquent children, of children with neurotic illnesses and school refusal and of children with epilepsy and brain damage. Dr. Barker and Dr. Rees in separate contributions describe the general in-patient unit in Birmingham and also a special service for language-disordered children. Dr. Stroh contributes a somewhat idiosyncratic chapter on the treatment of psychotic children at High Wick.

It is significant and a sign of the serious shortage of child psychiatrists in the country that children with special needs are catered for only in some units and not in others. The language unit in Birmingham is unique. The in-patient service in Liverpool, vividly described by Dr. Pinkerton, offers an intensive service for children with psychosomatic disorders, with psychiatric illnesses manifesting as physical complaints and with psychiatric disturbances secondary to physical illness. It is clear that many children with serious psychiatric disorders do not find a place in this unit and also that units in other parts of the country do not cater nearly as well, for example for asthmatic children, as does the Liverpool service.

The atmosphere of each unit and its administrative structure are conveyed clearly and a few photographs help to liven the chapters. For many children a psychiatric admission is a passport to further, often residential, help elsewhere. Nevertheless, the assumption of the sick role reduces guilt in the child as well as his parents. Unlike children's homes and residential schools, psychiatric units can admit children however ill, on an emergency basis if necessary, and informally.

Dr. Kolvin and his colleagues in nursing and psychology describe usefully and in detail the Newcastle one-year training course for child psychiatric nurses. These authors estimate that four thousand nurses will eventually be needed in this special field. Chapters by the editor on outcome and "The Future" complete the volume.

Some general policies for child psychiatric in-patient care can now be identified: all units have their own staff of nurses, teachers and occupational therapists as well as psychiatrists, psychologists and social workers who also look after out-patients. A 1 : 1 child/nurse ratio provides for adequate therapeutic child care within the framework of a shift system and holidays. Children are looked after in small groups often with individual nurses especially responsible for one or two children. Multidisciplinary assessment and management are the rule and regular discussions take place in team meetings involving all members of staff. Each unit can admit only a limited number of delinquent children at any one time. All children must have a parent or parent-substitute to whom they will return on discharge: a hospital is no substitute for a home. Senior nurses should not be rotated through the unit and a unit functions best if the sister in charge has a degree of autonomy and is directly responsible to a principle nursing officer. The atmosphere in such units is informal, play space in and out of doors is essential, nurses do not wear uniform and they eat with the children.

There is a lack of emphasis in these chapters on psychological treatment techniques and on the in-patient unit as an indispensable laboratory and training resource for many professionals concerned with child care. Psychotherapeutic interactions of staff with children and families in individual and group settings are not discussed by any of the contributors except in relation to psychotic children, that is children least responsive to this approach. Two groups of youngsters are not dealt with at all: older adolescents and children requiring long-term hospital care either because they are mentally handicapped or because they suffer from severe personality disorders on the basis of brain damage or other constitutional deficits.

The book however provides much information and can be highly recommended to all professionals concerned with the residential treatment of disturbed children. It also raises many questions. Among these are the place of psychiatric in-patient care in relation to other types of care for disturbed children; the usefulness or otherwise of age segregation of children; and how such specialised resources can become more uniformly available on a national basis.

SULA WOLFF

Attachment and Dependency. Edited by JACOB L. GEWIRTZ. V. H. Winston and Sons, Inc., Washington, D.C., 1972. pp. ix + 251. £4.85.

THE PHENOMENA associated with the development of early social interactions have occupied the attention of developmental psychologists since the first quarter of this century. Each period in this short history has made its own conceptual and methodological contribution to the investigation of this area. Psychoanalytic thinking, learning theories and ethological approaches have all had their impact on research into early social development. This book includes chapters by five of the major contributors to this very important area of developmental research and theory, R. R. Sears, R. B. Cairns, L. J. Yarrow, M. D. S. Ainsworth and J. L. Gewirtz. The participants were asked first to present a description of their main theoretical formulation as it stands now. Secondly, they were expected to refer to the distinction between, and the usefulness of, the concepts of "attachment" and "dependency". The participants were specifically asked "to avoid arguments that might be based on differences in style, in the tactics of research, or in the choice of heuristic".

The chapters by Sears, Ainsworth and Gewirtz are mainly summaries of their respective theoretical positions as known from their various publications of recent years. Very little is attempted by these writers in way of a serious re-examination of their own conceptualization *vis-a-vis* the others. The only attempt at a synthesis is provided by R. B. Cairns. Altogether, Cairns' chapter is the most comprehensive. It touches upon the key issues in the process of the development of early social interaction (e.g. establishment vs maintenance of mother–infant interaction patterns; the emphasis on "stability" vs "change" in these patterns) and points at the basic meta-theoretical preferences underlying the differences between the various theoretical approaches, such as the preference for economical over unitary explanatory terms. Cairns draws one's attention to the failure of each theoretical approach to go beyond its pre-set conceptual limits. Social learning theories, for example acknowledge the importance of developmental events but fail to link these events to their key explanatory constructs.

The summary chapter prepared by J. L. Gewirtz and R. B. Cairns is another extremely useful section as it gives a very concise overview of the different approaches and their specific positions on issues such as the involvement of developmental–biophysical factors in the establishment and maintenance of early social interaction and the role played by various experiential factors in the same processes.

One of the principal issues presented for discussion by the participants is that of the importance, or usefulness, of maintaining generic terms such as "dependency" or "attachment" to describe certain patterns of interaction, especially between mother and child.

The supporters of such a usage argue for the *convenience* of using one term. They further imply that by invoking such a generic term they succeed in *explaining* the phenomenon it refers to, and in finding a *unity* in the processes underlying these interacting patterns.

While Cairns tolerates the generic concepts for convenience sake he agrees with Gewirtz and Yarrow that they are unnecessary for explanatory purposes. The reviewer of this book suggests that for explanatory purposes, the usage of these generic terms is not only redundant but may in fact be misleading, by assuming identical processes where in fact different processes are indicated by different interaction patterns, and harmful, by leading into conceptual impasse.

Altogether the various chapters of the book make it clear that the differences between the theories are not related to any differential prediction or effectiveness in explaining available data but are based rather on differences in meta-theoretical attitudes to the basic notions of "explanation".

MIRIAM K. ROSENTHAL

Job's Illness: Loss, Grief and Integration. JACK KAHN. Pergamon Press, Oxford, 1975. pp. xiv + 166. £6.00.

THE BOOK OF Job has had a perennial fascination for all sorts of people. Called "the Matterhorn of the Old Testament", it was described by Froude as "towering up alone, far away above all the poetry of the world". Now, drawing upon his lifelong experience as a psychiatrist, Dr. Kahn presents a new psychological interpretation. But is Job a suitable case for treatment?

Dr. Kahn views Job's experience as an illness with discernible cause, symptoms, and process of therapy leading to a cure. Job's premorbid personality is described as obsessional. He insists on his "perfect" behaviour and is scupulous in his sacrifices even on behalf of his children, thereby denying them a separate identity. These personality features are precursors of his subsequent paranoid-depressive breakdown. As he sits on his dunghill, he is joined by the three friends and together they form a therapeutic group. Despite the friends' "cold comfort"—they insist that suffering points to sin; each one talks in turn and no one listens or responds to anyone else—it is the group support and interaction that provide Job with the resources to construct a cure. Elihu, the angry young man, is credited with a crucial part in the therapeutic process. Dr. Kahn notes that for once Job is reduced to silence, an indication that he is paying attention for the first time to what someone else is saying. Since the Elihu speeches are generally accepted to be a later addition to the book, it is more likely that Job never got the message which, Dr. Kahn maintains, he internalised and projected later into God's answer from the whirlwind.

This interpretation has difficulties for the biblical scholar. The book of Job in form and content stands within the Wisdom tradition that was widespread in the Ancient Near East for many centuries and includes reflective writings that question conventional beliefs. There is even a "Babylonian Job", with detailed descriptions of the suffering of a righteous man, his desertion by former friends and ultimate restoration. Although the religious message is distinctive, the book of Job is a typical piece of Wisdom literature.

Dr. Kahn's case rests upon the details of Job's illness which, because of the bewildering variety of symptoms, has long offered a field-day for the diagnostician. Everything has been found from syphilis to amoebic dysentery. Dr. Kahn points to Job's sleeping difficulties ("troubled nights are my lot . . . I do nothing but toss till morning twilight"), digestive disorders and paranoid ideas. All these complaints have parallels in the lament form, with characteristic accounts of insomnia, anorexia, and burning loins. Social isolation and persecution by enemies are recurring themes. Dr. Kahn calls this the language of paranoia. It is also the language of the psalms. What we have here is not a literal recital of symptoms but a conventional way of describing affliction. It may not even be primarily personal. In the Old Testament the individual and the community are never sharply differentiated. As Buber says: "Behind this 'I' made so personal here, there still stands the 'I' of Israel".

It is easier to find evidence in the text for depression than obsession. Job's sacrifices are not presented as excessive, but merely as an indication of his exemplary piety. His attitude towards his children is what one would expect from a prosperous desert sheik untroubled by Twentieth Century Western concerns about identity crises. Job does not claim to be perfect, only that he has never done anything bad enough to deserve such unparalleled misfortune. It is ultimately a question about justice and about God, and how he can retain his faith in both.

The book is attractively presented, including the New English Version of Job and Blake's engravings. Dr. Kahn is an admirably clear and balanced guide to the various psychological schools of thought from Freud to Laing. There is no doubt about the illness. The problem—and real pity with a physician at hand as wise and compassionate as Dr. Kahn—is that there may be no patient.

ZOE HERSOV

Troubled Children: Their Families, Schools and Treatments. LEONORE R. LOVE and JACQUES W. KASWAN. John Wiley & Sons, New York, 1974, pp. 314 + xi. No price stated.

THE AIM of the research reported in this book is laudible and highly topical. As the authors state, "... interventions current at that time (i.e. when the research project started, 10 years before publication) consisted largely of the psychodynamic treatment of the child and often one parent, usually the mother". The book reports an attempt to break with this state of affairs by devising and then evaluating a novel treatment regime whose purpose is "... to enable adults to observe interpersonal behaviour and monitor their impact on children as objectively as possible". This regime is called "Information Feedback" and in the latter part of the book its outcome is compared with child psychotherapy given as an isolated treatment and with parental counselling. The main reason why this book deserves close attention is that it reports positive results from a psychotherapeutic intervention. Among high social class individuals, "Information Feedback" was found to be more effective than the other two treatments in maintaining grade point average whereas among lower class individuals, parental counselling was the more effective.

Before we can accept these encouraging findings, it is necessary to have a closer look at how the study was done. The cases were selected by inviting school personnel to refer cases with "chronic and severe adjustment problems". This criterion is likely to differ in different cultures and schools and is therefore unreproducible. However, this objection is partly met by a questionnaire completed by the school personnel from which a 4-category behavioural classification is derived. The nature of the sample, which the authors claim "... seems generally representative of families with children exhibiting serious interpersonal difficulties in Los Angeles elementary schools" (p. 21) is also obscured by the fact that the 91 treatment cases were drawn from a referred sample of 152. As the remaining 61 were refusers, one might expect them to differ in important ways from the treated cases but the necessary comparisons are not reported.

The measures used in the study as a whole are numerous and sophisticated. Throughout, the focus is on current family interaction and a picture is built up by comparisons of two-thirds of the referred group with a non-referred group of 29 controls matched on background variables. Consistent differences are reported of family functioning (particularly that of fathers) as determined by an adjective check list, a parental questionnaire, a family communication task and by videotapes of family interaction. Unfortunately, for many of these analyses, ill defined subsamples are used so that the original matching of referred and non-referred cases seems to be lost.

For the comparison of treatments, the 91 cases are allocated randomly to the three groups. As luck would have it, the number of aggressive children in the categories varies considerably and this is recognised by the authors. However, the probability that the child's behaviour is likely to be predictive of outcome does not seem to be adequately appreciated. In fact, the dearth of aggressive children in the "Information Feedback" could be seen as giving this regime an unfair advantage in outcome.

The description of the treatments reflects the fact that this book is really about the novel "Information Feedback" regime and this is described in some detail. Basically, the interaction measures referred to above are used to give the parents insight into child handling and to increase their competence. In contrast, the child therapy and parental counselling regimes are only described in the broadest terms. If the aim is a comparative evaluation, all the treatments need careful deliniation and characterization so that they can be reproduced in other centres.

Despite the painstaking attempt to characterize the samples by the measures listed above, the only outcome measures used are changes in grade point average and school observer ratings. The school observer ratings shows a significant decrease in "negative" playground behaviour (a measure derived by factor analysis) but as there is no comparable control group, the possibility that the change is due to regression effects or spontaneous remission cannot be ruled out. Also, less than 70% of cases were followed up by this measure. This leaves grade point average which did show differential before—after changes and interaction with social class. It is surprising though that after the meticulous piloting and sophisticated measures used in other parts of the study that outcome was not measured by a greater variety of less crude measures. Having said this, grade point average does have the advantage, as the authors note, of being relatively independent.

I have commented rather fully on the methodology of this study. This is not meant to be discouraging and over-critical because the fact remains that attempts to evaluate psychotherapy are still far too few and are very difficult to carry out. Many of the ideas in this study are interesting and original and have many lessons for all of us but we need to go on refining our methodology to chart accurately the process and outcome of what we do.

A. R. NICOL

Your Child with Asthma—Some Advice for Parents and Others. SIMON GODFREY. Heinemann Health Books, London, 1975. pp. 88. £1.25.

DESPITE dramatic recent advances in the chemotherapy of childhood asthma, considerable confusion still persists among doctors and laymen alike about its aetiology and management. Simon Godfrey is a paediatrician with a particular interest in this disorder, especially in the unravelling of its pathophysiology. To this end, he and his co-workers at the Brompton and Hammersmith Centres in London have conducted valuable and original research, with indisputable benefit to our overall understanding of the problem. This little book is a laudable attempt to extend that same process to parents with asthmatic children—in some ways an infinitely more difficult task. That the author has largely achieved it, in 88 pages, clearly written without a trace of patronage is a tribute to both his erudition and penmanship. To the experienced clinician, it further indicates the distillate of much medical wisdom. That is to say the text, despite deceptive simplicity, strikes a refreshing balance between the rival claims of allergy, the role of infection, change of "air" and emotional factors as aetiological agents. It boldly dismisses many myths arising from these claims and focuses firmly as it should do, upon built-in immuno-physiological vulnerability as the root cause of the condition. Only it says all this much more simply and succinctly. In the same sensible way, drug therapy is dealt with in non-technical terms, including the significance of disodium cromoglycate and beclomethasone diproprionate, with no loss of validity in the process. On the contrary, every effort is made to strip steroid therapy of its alleged evils by emphasising its value in perspective.

In all these spheres, the book more than amply fulfils the declared intentions of its author. All the more disappointing therefore that it fails to reflect our better understanding of attitude—self-attitude and parental attitude—in influencing global mangement. Understandably enough, some doubt is cast about the usefulness in pragmatic terms of complex, time consuming disciplines such as formal psycho-analysis. For the average case of childhood asthma, this level of involvement is both impractical and unnecessary—agreed. On the other hand, to disclaim, as does the author, that the betterment in asthmatic children so often noted upon admission to hospital or transfer to residential school, is in any way related to parental attitude—"it cannot be emphasised too strongly that there is no evidence to support this idea" (p. 16)—is to discount the pioneering efforts of an equally distinguished paediatrician albeit of a previous generation. Almost 55 yr ago, Peshkin (1930) drew attention to this self-same phenomenon, which prompted him indeed to launch the Children's Asthma Research Institute in Denver, Colorado and to coin the famous term "parentectomy". The fact that Peshkin over-simplified the issue and that his policy calls for individual tailoring to suit the circumstances of each case (Pinkerton, 1971) in no way detracts from the validity of his thesis that parental attitudes do play a part both in prognosis and therapeutic response. Ironically, it fell to Purcell (1969) working in the same Institute nearly 40 yr later, to provide the "hard" evidence the absence of which Dr. Godfrey deplores. To be absolutely fair, it would have been profoundly difficult to reproduce this kind of data within the limitations of a short and condensed text. To explain "objective" data lucidly is one thing, whatever their complexity; to ventilate emotive issues properly is quite another; and advising parents about their own potential contribution to clinical pathology must surely rank as an emotive issue. Wiser then perhaps to evade the issue rather than risk its almost certain misinterpretation by a readership too intimately involved to remain unbiased.

These reservations apart, this little book can be thoroughly recommended to a primary readership of parents, school teachers, nurses and physiotherapists, though by no means without value to family doctors, educational psychologists and medical students. For those of us engaged in furthering the cause of psychosomatic inter-relationships, paediatricians, child psychiatrists and clinical psychologists alike, the book has a further message. It is to so construct our future research programmes that however subtle in character and however difficult to identify the parameters we seek to establish, their ultimate contribution is acknowledged to be as pertinent as the "harder" factors which currently hold sway. Is it perhaps too ingenuous a hope that Dr. Godfrey's second edition will highlight psychotherapeutic advances with as much conviction as his present text pays tribute to their chemotherapeutic equivalents?

PHILIP PINKERTON

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Care Can Prevent. PHILIP BARKER. National Children's Home, 85 Highbury Park, London N5 1UD, 1973, pp. 80. 50p. (paperback).

IN HIS Convocation Lecture, Dr. Barker examines the problem of deprived and delinquent children in our midst and poses the question how can we prevent and how can we discover what in the long run is going to be most helpful.

He recognises clearly the limits of our present knowledge and the essential need for the co-ordination of all departments working with these children—none of us know the answers.

He outlines the extent of the problem. He quotes from studies which shows that one out of every six children who have been in care in earlier life show psychiatric disorder at the age of ten or eleven! In a quote from the same research he challenges our basic assumption that anti-social behaviour is associated with the amount of separation and institutionalisation that these children have experienced and points out that in this research there is evidence "that anti-social behavior is associated with the quality of parental relationships before the children came into care". We tend perhaps to ignore this and Dr. Philips Barker is right to bring it to our notice again. Dr. Kelmer Pringle also stresses this point.

In helping these children Dr. Barker recognises that child care resources rather than the child psychiatric ones have the main role to play, but team work will be essential. He points out that the number of available psychiatrists is limited. He is aware of the poor results obtained from treatment of delinquent children in out patient psychiatric services, and feels that the work of the psychiatrist should probably be diagnostic and supportive rather than actively therapeutic. If psychiatrists are to fulfil this role, we need open access to them!

He voices the current opinion that psychiatric time (the cream) should be thinly spread. Is there a danger in this? If spread too thinly it may become valueless. Do we need to look also at areas in which psychiatric time should be concentrated?

Dr. Barker criticises both the present child care service which tends to be a "crisis service" rather than a preventive service, and also the present psychiatric services "I believe not only that psychiatrists have withdrawn to their clinics, but also that child care personnel have withdrawn to their children's homes and that the child care field staff have confined themselves to acute problems and crisis situations". He rightly stresses the need for more preventive work. He asks for improved training in which social psychiatry is a strong component.

He stresses the need for research to look at what we are achieving in this field.

He gives a good outline of the questions as yet unanswered. Is it a failure of children's homes to provide the right kind of care? Is it continued effects of experience suffered by the children before they came into care? Are genetic and biological defects important factors? Why are boys in the majority of the deviant children? What can be done to prevent conduct disorders in children generally? He recognises that we do not know how to interrupt the cycle of deprivation and that methods we have all used have failed to meet the needs of many of these children.

The necessary prospective research will be complex and Dr. Barker asks for the establishment of chairs and departments of child psychiatry at Universities (advocated by the Royal College of Psychiatrists, 1973) where this work could be undertaken. Sociology and Psychology Departments should also contribute. The problems of the cycle of deprivation lie in the border area between the three disciplines.

In his convocation lecture—Dr. Philip Barker challenges us all. His final sentence is worth noting:

> *"The result, though, should be that we come to know what we are doing—something we cannot claim at present."*

B. EDWARDSON

The Development of a Child Psychiatric Treatment Program. HELEN K. GRACE. Schenkman Publishing Company, Inc., Cambridge, MA., 1974. pp. 224 + index. No price.

TITMUS invented the term "Statutory magic". It referred to the belief that when an Act of Parliament was passed, the services which it envisaged immediately came into effect. There is, however, something worse than this: it is the bringing of the services into actual existence before trained staff is available, and without the innovations of imaginative and dedicated workers who are prepared to build up theory which is relevant to the tasks which have to be undertaken.

Dr. Grace has studied the development of a psychiatric treatment programme for children "established within the context of a large-scale state bureaucracy". This was in response to a demand for Community Health Services in the U.S.A., as an alternative to the large State Hospitals which were usually remote from the main centres of population. Dr. Grace's standpoint is that of a psychiatric nurse who turned to sociology in order to understand the institutions in which she had received her initial training and experience. She began to question the values which were generally accepted in the services for the mentally ill, and it can only be hoped that the particular organisation in which she carried out this study is not typical of psychiatric services for children in the U.S.A.

The geographical area served by a newly built health centre was a large metropolis, and its surrounding areas, with a population of approximately 3·7 million. There were four units for children's services, which were designed within the mental health centre, two of the units offering residential care while the other two were for day-care, out-patient, recreation, and school activities. The in-patient capacity was sixty places.

Staffing is described under the heading "Paths to Power". The first appointment was that of a Programme Director, a Social Worker to whom the appointment signified success. This Director's personal vulnerability affected the quality of further appointments. Psychologists were usually temporary occupants of posts while pursuing doctoral degrees. They composed the most highly educated segment of the staff, but all left the organisation within a year. Child Care Workers came with a desire "to work with children" and were seeking jobs outside the usual professional categories, apparently without any previous training. Psychiatrists were appointed at State and Regional levels, and were superimposed upon the system after it had come into operation. The only previous experience of the Director of the Children's Programme was private psychiatric practice and, in general, the psychiatrists were described as "novices in public administration".

The selection of patients to be accepted into the programme seems to be no more than a system of defensive manoeuvres to avoid involvement with difficult patients. The total number actually receiving treatment was surprisingly low. Any aggressive or psychotic features were reasons for refusal at telephone intake level, or at subsequent screening interview.

It would seem that the State Hospital remained as the main provision for these children.

Elsewhere I have seen reference to the idea that the only alternative to out-patient care for children is long-term State Mental hospitalization (Malone, 1970). The only possible conclusion to be drawn is that the State Psychiatric Hospitals are expected to carry out purposes which, in this country, are served by residential care in community homes under Social Service Departments. In the U.K., Child Psychiatry in the hospital system derives some of its basic philosophy from child guidance, and this has favoured co-ordination between clinical and local authority services. Paradoxically, in the U.S.A., where child guidance gained its initial impetus, there seems to be an unbridgeable gap.

I think that I have conveyed my alarm at the state of affairs which is intentionally exposed by this book. What remains is to turn our attention to the possibility that some of the same factors exist in some of our own newly created oganizations in the field of psychiatry and social work.

J. H. KAHN

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The Social Individual. JOHN ROWAN. Davis-Poynter, London, 1973, pp. x + 248. £3.50.

THIS book—the second of four covering 'psychological aspects of society'—is a carefully planned production which combines a human approach with abundant references and a firm spine of scientific evidence. It is one of the new genre of divergent-convergent expositions which are clearer, as well as warmer, than the narrowly convergent texts that, at one time, dominated the literature.

John Rowan's purpose is to describe personal and social psychology in developmental terms. The result is to bring a new breadth and vitality to social psychology. In essence he has organized a re-sort of conceptual priorities so as to place the-person-in-society at the centre and relegate such concepts as intelligence, role and personality to peripheral importance—as aspects of the complex systems of interaction and growth.

The orientation serves well to elucidate the processes of development which characterize human life literally from the cradle to the grave, and also the various obstacles to mature responses that are encountered on the way. In part the book succinctly summarizes a whole range of work on developmental stages, and in part strikes out on its own. Thus, it is both informative and challenging. And, at times, controversial—as in the chapter on sex differences where I sensed a certain undervaluing of the evidence which suggests that the sex chromosome may account for temperamental as well as physical differences.

As well as being bold, the book is also practical. The last three chapters are on the control, design and style of research in social psychology. They are, I would say, the most winning chapters on method that have appeared for a long time, an inviting demystification for those who regard the mathematics of research as beyond their reach.

Perhaps the book's most pleasing feature is its resolute optimism. It is a tragedy that psychology and psychiatry have so often given themselves to a dreary negativism about humanity, or an arid reductionist interpretation of experience. John Rowan will have none of it. He is concerned with the range and emergence of human potentialities and that leaves small room for despair. If the natural growth of an individual—given a reasonably encouraging social milieu—is towards mature functioning, as is implied by the sort of evidence he has assembled, then social psychology's main task is to clarify the means of promoting growth: a social purpose for social psychology. Psychology students who complain that the psychology they are learning is irrelevant to life will gain new heart from reading this book.

JAMES HEMMING

Marital and Family Therapy. IRA D. GLICK and DAVID R. KESSLER. Grune & Stratton, New York, 1974, pp. xxii + 181. £6.

GLICK AND KESSLER have attempted an enormous task, and it is greatly to their credit that their textbook on family therapy is as successful as it is. Family therapy is an area which is characterised by great enthusiasm and very little accurate knowledge. The authors, on the basis of their teaching programme in family therapy, have compiled a brief, succinct, and relatively balanced account of all the relevant aspects of family therapy. Thus there are chapters on normal families, understanding and evaluating the dysfunctional family, and aspects of family treatment including strategies, indications, resistance, hospitalisation, and specific diagnosis of the designated patient. There are also chapters on outcome of family therapy, process research and training. As stated in the foreword, this seems to be the first general textbook in the field, in that previous authorities such as Ackerman, Satir and Minuchin have all put forward their own views and techniques as pioneers and innovators.

On first glancing through the book, one is struck by the elementary nature of much of the infortion that the authors give. However, one realises quickly that this is exactly what students in the field wish to know, and one is later impressed by the amount of distillation that must have gone towards producing a simple, coherent and readable account of the confused and unformed area of family therapy.

The senior author has been closely associated with Haley, and it is therefore not surprising that the general tone of the book is reminiscent of the work of Haley, Minuchin and their collaborators. This is essentially an account of family therapy from a "systems" point of view. Therapists who derive their theoretical background from psychoanalysis will be disappointed at the short shrift which is given to such concepts as transference, projection and infantile wishes. Likewise, behaviourists will be disappointed at the absolute failure to mention concepts such as reinforcement, response shaping, and contract therapy. There are some brief mentions of treatment for specific sexual problems (along the lines of Masters and Johnson), but by and large the treatment of marital problems as such is given second place to the treatment of families presenting with children as the designated patient. The chapter on outcome research is rather thinly documented, and this is only partly due to the relative paucity of such research in the field of family therapy. However, many of the concepts reviewed by Glick and Kessler, especially their three objectives (to facilitate communication, to shift disturbed relationships, and to act as a educator and model) are shared by all schools of family therapy, and it is of course impossible to do family therapy without some understanding of many of the systems concepts which Glick and Kessler describe so clearly. Thus, for those who are new to the field of family therapy, whether psychiatrists, other doctors, psychologists, social workers or counsellors, this book will form an invaluable introduction to the field. Its relatively high cost makes one hope that a paperback version will soon appear and it is well enough written and researched to warrant further revision, and possibly new editions, as the field advances and more accurate knowledge becomes available.

M. J. Crowe

Children's Ways of Knowing. N. Isaacs. Edited and Introduced by Mildred Hardeman. Teachers College Press, New York, 1974. pp. 186. No price given.

This book consists of a selection of seven papers which were published by Isaacs within the period 1933–1964. These papers are now brought together in one volume for the benefit of an American readership in the first instance. The late Nathan Isaacs was a remarkable man who, for most of his professional life, was concerned with the merchandise of metals and yet knew so much about children and the ways in which they learn.

The burden of the message presented in the book can be expressed in two sentences. First, educational practice must be adapted to the needs of the child. Second, the author gives his own views on cognition itself. The first and longest paper in the volume deals with children's *Why* questions, and resulted from his association with the Malting House School from 1924–1927. At times his views are at variance with those of Piaget but it must be remembered that it is the Piagetian views of the 1920s he is discussing. Chapter 2 deals with the educational implications in respect of nursery–infant teacher training if it is assumed that each individual is of intrinsic worth. In particular he stresses the things that the teacher of young children should know and what aspects of psychology should be studied by him.

Papers 3 and 5 are linked in that both deal with aspects of scientific thinking in young children or with the place of science in their education. A plea is made not for the teaching of science as such in the Primary School, but for the deliberate and sustained fostering of "finding out" activities, and all that goes with them, for these are, in the author's view, the basis of science. In the fourth chapter it is argued that the psychology of cognition had been too fragmentary and superficial. Human cognition consists of a very complex pattern of beliefs and assumptions, often unconscious, which determine the child's expectations and force him to make his decisions. Then the penultimate chapter is a summary of, and from the viewpoint of Isaacs a critical analysis of, some of Piaget's later work and the implications for teachers.

In November 1964 the present reviewer and Nathan Isaacs appeared together before the Plowden Committee to give evidence and to answer questions. The last chapter of this volume reports the memorandum which the author presented to that committee, the essential message being that schools have failed to educate rather than that pupils are unable to learn.

This volume has much of value to all who are concerned with young children's learning. The papers are both scholarly and stimulating; they cannot fail to make the reader reflect on important classroom issues although some British teachers and students may be familiar with the viewpoints expressed. The author's outlook was perhaps coloured by his experience of able and advantaged children. He tends to ignore somewhat the effects on a child's learning of the beliefs, values, and aspirations of the home; of the child's self concept; and of the role that he feels he should play in school. But the book contains the reflections of a wise man who influenced the education of young children in England for 40 yr and who believed that meaningful learning is achieved through the active engagement of the learner.

K. LOVELL

Child Psychiatry Case Studies. R. D. CODDINGTON, L. ARNOLD, D. LEAVERTON and M. ROWE. Medical Examination Publishing Co., New York, 1973. pp. 282. Price $10.00.

THIS book gives outline descriptions of 64 cases. An initial description is usually followed by multiple choice questions about the diagnosis, further information is then given followed by further multiple choice questions about aspects of the case, such as aetiology or treatment, rather on the following lines:

Question A

The Book Under Review is:

(1) A cookery book;
(2) An attempt at desensitization therapy for professionals who dislike being patronised or dislike dogmatic answers on the medical model about complex behavioural problems;
(3) Designed to flatter the egotism of well trained child psychiatrists;
(4) A useful series of training exercises for professionals wanting experience in practical child psychiatry, or who want to learn how child psychiatrists might approach a certain problem;
(5) A comprehensive survey of the main problems encountered in child psychiatry;
(6) A latterday Spock for parents and residential child care staff.

The approach to diagnosis and treatment "is a little too much like, a touch of behaviour therapy, a ha'porth of Oedipus Rex, and a sprinkling of methylphenidate". (2) is sometimes correct, but not throughout. (3) could be true if having a similar training background to the authors implies being well trained. The choice of questions is such that this reviewer found it easy to pick out answers which the authors styled "correct", though few English psychiatrists would have answered in their style if formulating the cases themselves. (4) is correct as long as it is recognised that the approach in this book is the distinctive style of the authors. Since most of us cannot visit Ohio, this book provides an interesting insight into the way child psychiatrists work there. The questions serve the valuable function of forcing the reader to think about data presented which is of the kind they will meet in the fields the authors point out. I would have thought that this would be a useful book for any registrar or senior registrar to go through as a training exercise. It would also indicate to others working with children, the range of ideas that a child psychiatrist might go through when assessing a case, and the variety of treatments which could be offered. Readers expecting (5) would be disappointed, although the 64 cases cover a great diversity of problems. (6) Is quite wrong. This book would be of no value at all to people who had not got a background of appropriate professional training.

The approach of the authors is remarkably pedantic. They seem to place a great reliance on tests, have an unusual faith in diagnostic categories, and seemed remarkably sure that there are "correct" answers to questions about diagnosis and cause. The range of treatments which the authors have offered in the case material is wide; a surprising number of children are offered amphetamine or methylphenidate; behaviour modification is used a great deal often coupled with group therapy or family therapy; individual psychotherapy and play therapy is also used, but apparently less often. It is perhaps not surprising that the cases described respond successfully to treatment more often than one would expect from clinical experience.

Over all I think a student or practitioner reading this book would be encouraged to think more deeply and in a more understanding way about the behaviour of children and their parents. They would be encouraged to take note of the evidence presented and be deterred from making snap judgements based on only part of the evidence, or on the most outstanding feature of the case. I have not come across a book like this before, and I think it would be a useful addition to any training library.

Christopher Wardle

Personal Change and Reconstruction: Research on a Treatment of Stuttering. F. Fransella. Academic Press, London, 1972. pp. xii + 282. £4.00.

Construct theory seems now to have reached the stage where book length research projects are being undertaken and hot on the heels of Landfield's volume (*Personal Construct Systems in Psychotherapy*) comes this account of a major research in stuttering.

It signifies that Fransella's attempt to see stuttering in personal construct theory terms generates what is essentially a developmental theory of the disability. Fransella suggests that the parent obsessed by initially minor speech difficulties is in effect casting her child into the role of "stutterer" and the child learns to enact this role and elaborate the role relationship appropriate to it. The outcome is an adult who stutters because he understands stuttering—he understands how other people regard it, he understands the strategy and tactics of communication via stuttering and the interpretations placed upon it. What he does not thereby understand is the social implications of fluency. The book vividly illustrates the bizarre view which some stutterers have of the nature and possibilities of fluency. On the basis of this broad approach Fransella devised a psychotherapy for stuttering which involves the client in extensive reconstruing of any experience of fluency, however tiny, so that ultimately he can *live the life* of a fluent speaker—this, rather than merely speaking fluently, Fransella sees as the *necessary* goal. Fransella cogently argues that this broad way of viewing stuttering could also be a way of viewing the whole range of psychological problems—each could be looked on as "not so much an illness, more a way of life".

The book is inventive in a variety of ways and considerably extends the range of grid method, particularly the possibilities of the implication grid as originally proposed by Hinkle.

An attractive feature of the work is that Fransella does not feel constrained to choose between the statistical and methods approach of orthodox experimental psychology and the "picture of the person" concerns of humanistic psychology. The work moves gracefully from graphs of exquisite precision to a fascinating transcript of a series of psychotherapeutic interviews and gains interest by the mixture.

The book will prove valuable to many who have no direct interest in the problem of stuttering. It can be read for its practical extensions of construct theory, its elaboration of grid method and perhaps most of all, for what it contributes to our view of human problems in both child and adult.

D. Bannister

Childhood Disorder: A Psychosomatic Approach. Philip Pinkerton. Crosby Lockwood Staples, London, 1975. pp. xii + 192. £3.75.

This book provides a clear and interesting account of the psychosomatic approach to medicine and although it is primarily about childhood disorders it has a wider relevance. Early on the author makes it clear that "the concept of organic versus psychological disorder as two distinct entities" is "nonsense". As he then says, "the real question for diagnostic purposes is to what extent organic factors contribute and to what extent emotional ones, in any given case". The rest of the book is devoted to examining this matter.

Chapter 3 outlines children's basic developmental needs, and subsequent chapters go on to look at how various factors can adversely affect a child and his health. Endogenous factors, the parent–child relationship, school and other influences are considered. After discussing the various things which can determine the clinical outcome, Dr. Pinkerton then provides chapters upon how problems can occur in the various age groups from infancy to adolescence. The book ends with chapters on principles of treatment and the psychosomatic concept.

While there is little that is new in this book, the basic principles of psychosomatic medicine are clearly stated in a way which should be helpful to students approaching the subject. The text is illustrated by means of tables and figures, some of which are perhaps on the complex side, and it often takes longer to work out what the table or figure means than it does to extract the same meaning from the text—at least that is what the reviewer found. Since however the text is quite complete in itself those readers who find such illustrations difficult can stick to the text and obtain a clear account of the author's argument.

Inevitably in a book such as this there are a number of statements and opinions with which some readers will disagree. This is not surprising in view of the difficulty of apportioning aetiological significance in conditions which have multiple causes. This does not however in any way detract from the value of the book in setting out certain important principles. In the final chapter Dr. Pinkerton writes of "the danger of rapid escalation of more and more detail about fewer and fewer aspects of any given case, to the ultimate effacement of the child as a person". The book should certainly help to prevent this tendency. While it probably contains little of which readers of this Journal will be unaware, it should be essential reading for those embarking upon psychiatry, paediatrics and, probably, most other branches of medicine.

PHILIP BARKER

Separation Anxiety and Anger. JOHN BOWLBY. The Hogarth Press and the Institute of Psycho-analysis, London, 1973, pp. xvii + 444. £4.50.

THIS IS the second volume of Bowlby's *magnum opus, Attachment and Loss,* of which the first dealt with the nature of the child's tie to the mother, and the third will examine grief and mourning, the reactions to loss. The present concern is with the problem of separation.

As we have come to expect from this author the subject is dealt with exhaustively, with full coverage of the world literature in the fields of psycho-analysis, developmental psychology, and ethology.

Part I covers what for many readers must be familiar territory, the clinical and experimental observations on the young, human and non-human, during and after separation from the mother. In this present treatment, however, we become aware of a broader perspective, a biological standpoint which views child development and its vicissitudes within an evolutionary context. The stages of separation behaviour in childhood designated *protest, despair,* and *detachment* are linked respectively to the clinical phenomena of separation anxiety, mourning, and defence. What is original here within the psycho-analytical corpus is not the recognition of these familiar issues but the way in which they are perceived as phases in a single process. It is fully acknowledged that Freud himself did latterly emphasise in *Inhibitions, Symptoms and Anxiety* (1926) the central importance of separation or the fear of separation in the genesis of clinical anxiety; but it is also pointed out how little impact this has had on psycho-analytic thinking as a whole. Among the few who arrived at views similar to Bowlby's were Suttie (1935) and Fairbairn (1943).

Part II is concerned with the genesis of fear in humans. To the reader who has no particular allegiance to psycho-analytic theory much of what is described may seem obvious to a degree. It is only when one grasps what Bowlby is arguing *against* that one understands the need for this meticulously detailed exposition. Children's psychiatrists, even those of an eclectic disposition, may find many long-cherished assumptions challenged by the discussion of "the puzzling phobias of early childhood".

The last section deals with individual differences, and what the author designates as *anxious attachment.* This Bowlby considers a more objective term than over-dependency; the familiar notion of "unmet dependency needs" he rejects as pejorative. The anger and frustration which the child directs towards an attachment figure are seen by Bowlby as reactions to frustration, not as Klein postulates, the inevitable outcome of repressed hostility.

Somehow the chapters which apply these principles in explanation of the genesis of "school refusal" and of agoraphobia carry less conviction. The threat of abandonment by parents as a major stress factor in early childhood is elevated to a pre-eminence which does not do justice to either the complexity or subtlety of the intra-familial factors encountered in clinical practice. Collusive secrecy by parents or relatives may sometimes mislead, but surely not frequently. This is not, however, to criticise the emphasis on family dynamics and happenings as important factors in aetiology and management.

There can be no question that Bowlby is making a major contribution to the understanding of deviant emotional development in childhood and after. A problem for psycho-analytic readers is the whereabouts in all of this of Oedipus.

FRED H. STONE

The Parent as Teacher. A guide for parents of children with learning difficulties. D. H. STOTT. University of London Press, 1974. pp. 134. Boards edition, £1.50. Paperback edition, 75p.

SHOULD parents of children with learning disabilities teach their children to read? Psychiatrists and psychologists dealing with parents of backward readers may prefer to give an answer qualified by their knowledge of a particular child and his parents. Stott has no doubts. He believes that parents can and should do all they can to help and he recognises that all too often there is no one else available to give the regular, systematic instruction necessary for the failing reader. Accordingly, he sets down simply and clearly what he feels a parent should know and do.

Stott is convinced that at the root of learning disorders is a behavioural handicap, and that children fail to learn because they are unforthcoming, inconsequent or hostile and because they do not know how to learn. While these may be contributory factors, Stott rejects any others. Chapter 3, "Intelligence", will, I fear, falsely raise the hopes of many parents whose children function at dull or below average levels on intelligence tests. Stott regards perceptual handicaps and dyslexia as myths, despite accumulating evidence supporting their reality. This is little comfort to parents of children with a specific difficulty in learning to read and to write and who do not exhibit the behavioural handicaps described by Stott.

Not all parents make good teachers. The Parent-as-Teacher Rating Scale in Chapter 2, should enable parents, and teachers too, to assess their skills and success in the role of teacher. Stott's considerable experience of children with learning disabilities leads him unequivocally to advocate a systematic carefully graded phonic approach. And learning should be enjoyable. On these premises he has constructed a series of learning kits composed of games which children do enjoy. The best known is his Programmed Reading Kit. This has been used successfully for many years by remedial teachers. However, not all retarded readers benefit initially from a phonic approach. Some do not have the necessary phonic sub-skills. In Stott's experience children who have achieved success with the Flying Start programme are ready for the Programmed Reading Kit.

Five learning kits devised by Stott are recommended. Few parents could afford to buy all. Stott suggests the formation of parents' circles to share the expense.

SANDHYA NAIDOO

Isn't It Time He Outgrew This? or A Training Program for Parents of Retarded Children. VICTOR L. BALDWIN, H. D. BUD FREDERICKS and GERRY BRODSKY. Charles C. Thomas, Springfield, IL, 1973, pp. vii + 209. $8.95.

THERE has been a plethora of behavioural panacea published for parents of disturbed and retarded children. The majority are pervaded by a tremendous enthusiasm and singleness of purpose—namely the application of behaviour modification to behavioral disorders and for the training of mentally handicapped children—which is understandable, and probably necessary, when a new approach succeeds where previous attempts have consistently failed.

The present book is of the same vein and so fails to note the limitations of the approach or discuss other approaches and techniques. Given the life-long, all-embracing problem of mental handicap, parents will need guidance on the wider issues of what to teach and why to teach it. This is particularly important for parents trained in such an effective technique as behaviour modification.

Thus, it should be emphasised that the book is only a program for training behavioural techniques and should be considered as one aspect of parent counselling.

Given this limitation the book is commendable. It is obviously written by people experienced in parent training and uses innuendo, case histories, and coloquialisms to create an intimate style simulating a personal approach. But can parents from non-American cultures accept this style, especially those with little experience in further education?

The first half clearly presents the principles of task analysis, cues, prompts and small-steps, reinforcement and evaluation in that order. Each section has many practical exercises and the parent can begin to do things from the first chapter onwards. The principles are repeated frequently throughout and the authors go to great lengths to reduce jargon. However, in attempting the reduction they sometimes add some confusion, and the illustrations and chapter headings are often unnecessary if not incongruous.

The second half of the book provides detailed programs of training, viz. feeding, dressing, toileting, walking, running, throwing, talking, counting and for coping with behaviour disorders. This appears to be the main strength of the book. Parents can quickly begin to help their child and through the detail given, are likely to attain success. At the same time they revise the basic principles in readiness for wider application.

Finally, those concerned with the counselling of parents of mentally handicapped children might well find it worthwhile both for practical information and as a teaching aid.

C. CUNNINGHAM

Emotional Problems of Development in Children. M. HERBERT. Academic Press, London, 1974. pp. x × 362. Hardback £5.00. Paperback £2.90.

THE BODY of data collected in recent years from research into patterns of child behaviour and its modification has enabled child psychologists to move from their traditional roles within child guidance and psychiatric clinics to become more involved in the diagnosis and treatment of psychological problems in other settings. They have also begun to take on the task of teaching these methods to those in most direct contact with the problems e.g. parents, GPs, health visitors, teachers and staff of residential institutions. The relevance of this book for those working with children lies in the placing of emotional and behavioural problems in their developmental context. Dr. Herbert takes account not only of the physical and intellectual development of the child but rightly gives emphasis to the socialisation process. He discusses the interaction between the child and his environment according due importance to the role of the child in this interaction.

Following an introductory section on basic concepts, Dr. Herbert discusses the biological foundations of emotional problems with specific reference to genetic and prenatal influences, the effects of brain damage, and constitutional differences in nervous system reactivity. The main body of the book is divided into four sections covering the conventional stages of childhood. The socialisation task of each stage is described using the Erikson model and the processes involved in fulfilling these tasks are examined. Possible points of breakdown are indicated with reference to the literature on diagnosis and treatment. During the first stage (0–18 months) the task is the development of basic trust, and this section contains a clear account of separation problems. The task of the next stage (18 months–3 yr) is the achievement of autonomy, and problems of dependency, mastery of bodily functions and self-restraint are described. Between 3 and 5 yr, the child's main task is the achievement of initiative. This section contains an outline of the problems of over- and under-socialisation as well as a useful review of speech and communication difficulties. The achievement of the 5–11-yr-old is described as "the laying aside of fantasy and play and undertaking real tasks". This, naturally, includes a discussion of problems arising in the classroom but surprisingly little attention is paid to failure to learn to read—a significant factor in so many referrals of children with difficulties at school.

Dr. Herbert states in his introduction that "no one theory can accommodate the complex and many-sided behaviours . . . which are manifested by human beings" and therein lies one of my main criticisms of his presentation, namely, that confusion is created by attempts to integrate widely diverging theories without having a clear commitment to any particular standpoint. It was disappointing, too, to find a lack of discussion of the clinical implications of research findings. For example, in the chapter on psychosomatic problems many details are presented on the physiology and etiology of asthma, including the involvement of emotion, but there is little indication of the psychological problems which such a handicapping condition can cause for a child and his family, nor of the role of the psychologist in modifying these problems. This also applies to the chapter on brain damage. Nevertheless, this book provides a useful and comprehensive handbook for all those involved with children and its appearance is particularly timely for those child psychologists seeking to widen their sphere of activity.

DIANE LUKEMAN

Autism and Childhood Psychosis. FRANCES TUSTIN. The Hogarth Press, London, 1974, pp. 200. £2.50.

THIS book is the result of many years' experience of Kleinian psychotherapy with autistic and psychotic children. Detailed clinical material is used to illustrate various stages in treatment as well as the several types of autism which the author has come to distinguish. Mrs. Tustin bases her carefully differentiated theoretical formulation on various patterns of early development and clusters of behaviour, and links these closely with differing aspects of treatment, as well as to other studies in this field.

To those of us not directly involved in psychotherapy, Mrs. Tustin's book gives the opportunity to understand something of the primitive and concrete thoughts and feelings, as well as the communication difficulties which psychotic children present. It can perhaps enable us to contribute more sensitively to their early diagnosis and management. Her perceptive and detailed descriptions suggest that there is a continuum not only from a stage of normal autism in newborn infants to later psychotic conditions, but also from the extreme panic of psychotic states to the less devastating anxieties and learning difficulties more commonly found in children.

Psychotherapists have sometimes been accused of ignoring parents, the environment and the constitutional and physical aspects of pathology. Mrs. Tustin's very realistic assessment of all these factors and their complex contribution to the syndrome of autism is particularly welcome. Her recognition of the nature of the stresses experienced by parents is very clear and her awareness of the need to help parents as co-workers and the importance of delineating her role and theirs is invaluable. She also makes important, and easily overlooked, connections between the consequences of sensory deprivation in a physically handicapped child (a blind or a deaf child, for instance), the inability of a severely subnormal child to use the environment constructively, and the inattention and perceptual block evident in autistic children. All these she links to thinking and learning difficulties in a way which makes her careful and systematic analysis of autistic conditions of general relevance, and it would be unfortunate if readers, not in sympathy with psychoanalysis, would therefore miss the parallels she draws.

Although much of the detail in this book is primarily of interest to those engaged in diagnosis and treatment, and, in fact, assumes familiarity with psychoanalytic ideas, it would also help teachers and nurses and parents to understand more about the inner world of the children in their care, and what sustained communication with psychotic children can actually involve.

EVA HOLMES

La Reaction du Jeune Enfant à la Personne Etrangère. T. GOUIN *et al.* Les Presses de l'Universite de Montreal, 1972. pp. 209. No price given.

A MOST enjoyable book. The authors observe and analyse the reactions of young children faced with a stranger. Most children show, at a certain stage in their development (usually sometime between 6 months and 13 months of age), a negative reaction when they are confronted with a stranger. Why does this happen, at that particular age, and when the stranger is usually inoffensive? Why do girls show this negative reaction sooner, more frequently, and more intensely than boys? Can this reaction be related to the emergence of the notion of causality and to the notion of permanence of object as defined by Piaget? Can it be better understood through Hebb's theories of perceptual conflict? What practical use can be made of the authors' findings, say when the child has to enter hospital or face any other separation from his familiar human environment?

The authors' observations are subtle, their methods of testing ingenious and precise; and although the resulting data bring more questions than answers, they illuminate the whole field of affective and cognitive development in the very young. This book neatly makes the point that warmth, sympathy and humour are valid aids to scientific research.

Maryse Metcalfe

Le Moi et l'Autre dans la Conscience de l'Adolescent. H. R. Tome. Delachaux et Niestle, Neuchatel, Suisse, 1972. pp. 200. No price given.

This book is a study of how adolescents define their identity, and how their self-image asserts itself over the years. It examines the relationship between self-image (how an adolescent sees himself) and social image (how the adolescent thinks that others see him).

The study is based on questionnaires. Preliminary work yielded three main factors: egotism—sociability—and self-reliance, "maitrise de soi". (Incidentally the book illustrates how difficult it is to translate abstract terms from one culture to another. I have not found a better translation than "self-reliance"—and the author, throughout his book, uses the English words "insight" and "empathy" for which he cannot find an exact French equivalent!)

About 800 adolescents (aged 12–21) were given questionnaires and had to answer successively in five different ways; first as they would describe themselves, then as they thought their friends (boys and girls) would describe them and finally as they thought their parents (fathers and mothers) would describe them. Moreover 52 pairs of parents were given a similar questionnaire and were asked to describe their children, first in the way they saw them, then in the way they thought their children saw themselves.

On the basis of the questionnaire results, the author studies how the conscience of self gets clearer and better defined at the same time as it gets differentiated from the social image of self.

Apart from its main theme, the book offers intriguing observations on the evolution of sex differences and on empathy. I was interested to read, for instance, how girls see their self-reliance increase as they grow older (both as self and as social image) whereas no such progression is reported by the boys. Also, how young people appear much better able to put themselves in the place of their parents than vice versa.

The questionnaires themselves are couched in simple terms and should not be difficult to translate. Much of the preliminary work has already been carried out and they could probably be given straight away to a British population. A comparison of results would be the basis of a fascinating cross-cultural study.

Maryse Metcalfe

Psychology and Medicine. S. J. Rachman and Clare Philips. Temple Smith, London, 1975. pp. 223. £3.75.

Doctors' training, and often their inclinations, prepares them to identify and treat disorders of body functions. At the same time they have traditionally accepted, with varying degrees of willingness, the role of counsellor on a wide range of social and psychological issues. The increase in scientific medical knowledge puts pressure on the doctor to know more and more; at the same time there has been a comparable increase of knowledge in the psychological and social sciences and in their clinical application.

The question arises: "Are doctors now trying to do too much, without adequate training in some fields, especially psychosocial?" I think many of us would agree that this is so and this book begins to make some suggestions about how doctors might share some of the load, in the psychological area at least. The main thesis is the working together of doctors (hospital and family) with psychologists to understand, diagnose and work out treatment strategies for a variety of patients with wholly or partially psychologically determined disorders or with psychological problems as side-effects of their physical disease or handicap.

In paediatrics psychologists tend to be "used" strictly as yet another part of the clinical investigation service. Rachman and Philips describe some of the ways in which psychologists can provide not only psychological tests, but also participate in the management of a variety of psychological problems associated with illness. They deal with the problems of aches and pains, sleep, the taking of medicine, being ill and in hospital, and psychological approaches to the control of bodily functions, from the viewpoint of what additional skills psychologists can add to those already used by their medical colleagues.

The presentation of the book is far from pretentious. There is no glossy eyecatching cover; the layout is unadventurous, the style is quiet and without literary embellishment; but what is said is important and simply to the point. It is a book for doctors and nurses to show the possibilities of sharing work with psychologists; but it is also for psychologists not yet involved in this aspect of human behaviour to alert them to the wide-ranging scope for the psychologist in the field of medicine.

Here come the psychologists!—for most of us it is not a moment too soon.

Roy Howarth

A Mileu Therapy Program for Behaviorally Disturbed Children. M. McQueen Monkman.

Charles C. Thomas, Springfield, Illinois, 1972. pp. ix + 293. $14.50.

This uninvitingly-titled book describes a project in which retarded and/or behaviourally disturbed children were admitted to the Adler Zone Center in Illinois. Thirty children aged between 6 and 13 yr, ranging in intelligence from highly trainable to gifted and referred for behavioural problems at home and at school, took part in a token economy-type regime over a period of 27 months. The project was designed to be not only a treatment but also a research undertaking: "The first major goal was that of conceptualising an ongoing service program in such a manner that the crucial therapeutic variables could be identified, taught, replicated and evaluated." The first chapters describe the "milieu" and the "crucial variables" (a collection of administrative and treatment systems), methods of handling the children, instruments devised for the research project and staff training. A description of administrative methods, three individual programmes and the punishment study follow, and in 8½ pages the assessment of the research project. Over half the book is taken up with appendices, and there are 22 "references" none of them referred to in the text.

As a treatment service for disturbed children the programmes described in this book seem reasonable if in no way novel and many of the children who went through the programmes may well have benefited from them. People wishing to set up similar treatment situations might find the descriptions of the practical details helpful, especially those in Chapter 6. As a presentation of a research project this book does not, in my view, merit publication. Quite elaborate instruments were constructed for the purposes of the research project and independent observations were made by graduate psychology students during baseline and treatment conditions: of all these only one, the Special Behavior Report Form, seems to have been analysed systematically and appears as Chapter 8, the Punishment Study. This compares the use of time-out and response cost, concludes that both are effective in reducing the rate of undesirable behaviours and that time-out resulted in a significantly lower rate than did response cost. The fact that time-out, which could be anything up to an hour in duration, might have reduced the time available to the children for indulging in the undesirable behaviours has apparently not been considered as a possible cause of the lower rate.

Apart from this none of the measures described featured in the assessment of the research project. Instead, follow-ups were done on 18 of the 30 children (this number dropped to 14 in some cases) and the results of treatment were assessed by comparing before-and-after reports from the children's homes and schools. From this it is concluded that between about half and three-quarters of the children were improved. Nothing is offered overall about changes in the children during their stay in the Center, but from a painstaking piecing together of the comments in the 27 case reports in the appendix it seems that about 20–30% improved while between half and two-thirds fluctuated or remained about the same.

This is a muddled, poorly presented book with the "data" so poorly organised as to be valueless. It is written in a turgid, jargonistic style adopted all too commonly by writers on behaviour modification. Self-evident statements abound: "It has been recognised by most practitioners that children tend to have either 'good' or 'bad' behaviors". "If reinforcers were going to be used to develod behaviors in children, it was necessary to make them either truly reinforcing or things that the children wanted." By the time one reaches a sensible paragraph, such as the description on p. 35 of how the children were taught to deal with frustration, it hardly seems worth the effort.

A recent reviewer of another book in another journal wrote, "Some books should never have been written, and this is one of them." This, I am afraid, is another.

JANET CARR

Education in the Early Years. Edited by MAURICE CHAZAN. Faculty of Education, University College of Swansea and Aberfan Disaster Fund, 1973. pp. 76. £1.00.

THIS IS a collection of seven papers delivered at a Conference chaired by Maurice Chazan early in 1973, plus an introduction by him, in which he surveys the developmental needs of young children, ending with a plea for more qualified and properly trained teachers at the nursery stage.

Van der Eyken writes on the social and educational aims of Pre-school provision—offering a much wider definition of early education, beyond teachers acting on children and bringing in parents and the wider community, particularly in socially disadvantaged areas. Tessa Blackstone sketches the future of nursery education against its historical background, and warns us not to expect miracles, either in cognitive, or social/emotional development. M. J. Shackleton-Bailey writes of his studies of originality in young children, and his attempts at measuring several vague, but very important characteristics, such as divergent thinking, curiosity, independence, self-esteem and perseverance, and the ways in which research into such difficult areas can best be got across to teachers—by close and long term collaboration. Joan Tough centres on language, obviously more easily quantified than "originality", and having measured differences between the language of "advantaged" as compared to "disadvantaged" children, debates their significance and implications for educational action very skilfully, and in a way that, surely, most teachers would warm to.

The symposium on the whole emphasizes the teachers', rather than the parents', role in early childhood education. It contains little new empirical data but many of the main issues in this field are usefully, clearly and concisely discussed.

LESLIE GARDNER

Pica—A Childhood Symptom. JOAN BICKNELL. Butterworths, London, 1975. pp. vii + 191. £3.65.

IN THIS work the author investigates a number of hypotheses on pica, its causes, effects and its association with other signs, symptoms and specific illnesses, especially lead poisoning and iron deficiency anaemia.

A useful review of the theories on the aetiology of pica reveal how various workers differ in their conclusions, depending on the aspects they have studied—social, psychological or physiological. This chapter also contains a summary of the regulations concerning the lead content of paints and toys with references to other aspects of pollution with lead and the methods available for the investigation and treatment of lead poisoning.

Part of the study described here is carried out on groups of severely subnormal children in hospital and at home where pica was a prominent feature and in others where it is not present. A third group of physically handicapped children are included as a study of the effects of immobilisation on the variations in excretion of lead under treatment.

The association of social conditions with pica is examined through a study of the children of socially inadequate families. The incidence of pica was not significantly greater and blood levels were not raised even amongst 'occasional chewers'.

The final two chapters present the results of a comprehensive longitudinal study on 15 children who were referred to the author with pica as one of the main symptoms with the accompanying case histories in the Appendix. These chapters are possibly the most informative part of this very useful Monograph.

The author's conclusions are enlightening, especially her observations that "the dangers of pica are not fully recognised among professional and lay groups, and lead poisoning leading to irreversible brain damage still occurs".

This concise and well presented Monograph contains most of the relevant information on pica and the problems associated with it. It should be useful to everyone concerned with the development, care and management of children, especially psychiatrists, psychologists, paediatricians and general practitioners who will all be confronted with the problem of pica at some time.

G. B. SIMON

Paternal Deprivation: Family, School, Sexuality and Society. HENRY B. BILLER, Lexington Books, Toronto and London, 1974, pp. ix + 226. £6.85.

IN A BOOK published in 1971, Biller brought together a large body of research on the father's influence on children's sex roles. The present book brings that review up to date, but it is more than a revision in that the discussion has been extended to deal with broader aspects of children's development.

Like its predecessor, the book provides a useful source of references (over 600) and a thoughtful discussion of the effects of father absence. A good case is certainly made for the psychological importance of effective fathering in addition to mothering, a point all to frequently overlooked in discussions of parenting. However, although Biller stresses the relevance of the *quality* as well as the *quantity* of father–child interaction, the concept of fathering is surprisingly narrow. There is a neglect of the social circumstances which lead to different patterns of parenting (for example among black families in the U.S.A.), and little attention is paid to the ways in which father–child interaction is influenced by relationships within the family as a whole. Rather a lot of weight is attached to projective and questionnaire test measures of personality functioning and distinctions are now always drawn between psychopathological abnormalities and variations within the normal range. It is also unfortunate that Biller seems so unaware of relevant British work. For example, no mention is made of either the National Survey or the National Child Development Study, of the several British studies on parental mental disorder, of Bowlby's writings on attachment, or of the Tizards' studies on institutional rearing.

In spite of these limitations the book provides much that is of interest and relevance to anyone concerned with the care of children or the study of child development. It should be included in any library concerned with these topics.

MICHAEL RUTTER

New Perspectives in Child Development. Edited by BRIAN FOSS. Penguin Books Ltd., Harmondsworth, Middlesex, 1974. pp. 226. £1.00.

THIS book covers attachment, conditioning and learning, and visual perception in infants; exploratory behaviour and language development in young children; and ethological methods in the study of child development. In six chapters these topics are summarized by six authors. The rationale for choice of the research mentioned is not always clear, although representative selection is a very difficult task. There is a minimal overlap between contributions although topics are interrelated. In several chapters there seems to be an over-emphasis on historical perspective in a book exploring new perspectives. In some instances old studies are again quoted perpetuating conclusions which beg to be put to proper experimental test, e.g. Ahrens' work on infants' smiling responses to various facial features. As in any such volume, and particularly in the rapidly expanding field of child development, some of the findings discussed and conclusions drawn have been superceded. Some material has already been summarized in other places, e.g. reviews of infant learning by Fitzgerald and Porges, and Sameroff. Perhaps the most stimulating chapter is the one dealing with a cognitive approach to language. One regrets that the topic of prematurity did not find a place in this volume.

This book will give the student reader or seriously interested lay person an inexpensive introduction to some topics in the forefront of child development. Unfortunately it will at the same time perpetuate some of the unfounded or outdated conclusions.

GENEVIEVE C. CARPENTER

REFERENCES

FITZGERALD, H. E. and PORGES, S. W. (1971) A decade of infant conditioning and learning research. *Merill–Palmer Q.* **17,** 79–117.

SAMEROFF, A. J. (1971) Can conditioned responses be established in the newborn infant? *Developm. Psychol.* **5,** 1–12.

J. Child Psychol. Psychiat., Vol. 17, 1976, p. 376. Pergamon Press. Printed in Great Britain.

ANNOUNCEMENTS

The International Society for Twin Studies
announces the
2ND INTERNATIONAL CONGRESS ON TWIN STUDIES
to be held in Washington D.C., U.S.A.
29 August–1 September 1977

The International Society for Twin Studies was established by the General Assembly of the 1st International Congress on Twin Studies (Rome: 28 October–2 November 1974) with the purpose of furthering research and social action in all fields related to twin studies, for the mutual benefit of twins and their families, and of scientific research.

For further information write to:

Dr. GORDON ALLEN,
Chairman, Organizing Committee,
2nd International Congress of Twin Studies,
Clinical Center, 2N252,
National Institutes of Health,
Bethesda, MD 20014, U.S.A.

The International Association for Child Psychiatry and Allied Professions will hold its 9th International Congress in Melbourne, Australia, 19–26 August 1978. The theme of the Congress will be "Children and Their Parents in a Changing World".

Inquiries and proposals regarding the scientific program should be addressed to:

PETER B. NEUBAUER,
Secretary-General,
International Association for Child Psychiatry
and Allied Professions,
59 East 73rd Street,
New York, NY 10021, U.S.A.

Inquiries regarding travel arrangements from the United States, Canada, Europe, etc., should be made to:

Foreign Tours, Inc.,
1140 Avenue of the Americas,
New York, NY 10036, U.S.A.
Att. NAOMI KABAK, Director
Congress and Convention Services.

pre-school children,
play, intelligence,
social class

Tizard, Barbara, Philps, Janet and Plewis, Ian (1976) Play in pre-school children—I Play measures and their relation to age, sex and I.Q. *J. Child Psychol. Psychiat.* **17,** 251–264.

Summary—The free play of 109 children aged 3–4 was observed in 12 pre-school centres, and assessed on a number of scales. Most of the play measures were found to be age-related; the major sex differences in play were in the choice of play material and fantasy theme. There were correlations between some of the play measures and the children's unstandardised verbal and non-verbal test scores. The findings are discussed in relation to pre-school educational practice.

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pre-school children,
play, educational orientation

Tizard, Barbara, Philps, Janet and Plewis, Ian (1976) Play in pre-school centres—
I. Effects on play of the child's social class and of the educational orientation of the
entre. *J. Child Psychol. Psychiat.* **17,** 265–274.

ummary—The free play of 109 children aged 3–4 was observed in 12 pre-school
entres and assessed according to a number of measures, in relation to the social class
f the children and the educational orientation of the centre. Both effects were highly
ignificant. The findings are discussed in relation to pre-school educational practice.

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individual psychotherapy,
child, outcome, follow-up

Wright, David M., Moelis, Irvin and Pollack, L. J. (1976) The outcome of individua
child psychotherapy: increments at follow-up. *J. Child Psychol. Psychiat.* **17,** 275–285.

Summary—Outcome studies of individual child psychotherapy providing comparabl
assessments at the close of therapy and at follow-up are reviewed and examined. In
creases in outcome status from the end of therapy to follow-up are found frequently i
treated groups of children. Follow-up increments appear to be most common whe
psychotherapy sessions number 30 or more. Methodological strengths and weakness
of the studies are discussed and the substantive, theoretical, and methodological im
plications of the findings explored. The strongest implication of the review is tha
evaluations of the effectiveness of individual child psychotherapy require follow-u
assessments.

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interaction, attachment,
discipline, twins

Lytton, Hugh (1976) The socialization of 2-yr old boys: ecological findings. *J. Chil
Psychol. Psychiat.* **17,** 287–304.

Summary—One hundred and thirty-six 2-yr old male twins and singletons and thei
parents were observed in the home. The incidence and distribution of certain types
interactive behavior by child, mother and father are reported, based on behavi
counts. Mother was the main focus of the child's attachment behavior and was als
more involved in disciplinary control. The data were broken down by Mother's educa
tion. Better educated parents used prohibitions slightly less and reasoning more tha
other parents. A reciprocal interaction system prevailed in the area of speech an
compliance: more speech and more compliance by better educated parents was r
flected in more speech and compliance by their children.

gangs, delinquency

'Hagan, Frank (1976) Gang characteristics: an empirical study. *J. Child Psychol.*
ychiat. **17,** 305–314.

ummary—This research report is concerned with the organisation of delinquent gangs,
e status of individuals within the gang, junior groups associated with the dominant
ng and the activities of the members themselves. It suggests that a broadly based
pproach to the various theoretical models of delinquent subcultures is essential as no
ngle model explains the wide variety of delinquent groupings which can exist in a
rge urban area.

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play, social interaction

Mueller, Edward and Rich, Adrienne (1976) Clustering and socially-directed behaviors in a playgroup of 1-yr-old boys. *J. Child Psychol. Psychiat.* **17,** 315–322.

Summary—This study aims at documenting the presence of clustering in a playgroup of five 1-yr-old boys. Clusters are of interest because they bring very young children in repeated contact. In addition, a method is developed for analyzing socially-directed behavior in early peer contacts. When the method is applied to the sample of cluster contacts, it is found that both the frequency and complexity of socially-directed behavior increase across the three-month period studied. The results suggest that one-year-olds can profit from regular contact with a consistent group of children. They also indicate the promise of using the methods developed in additional studies.

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direct reality testing,
clinical procedures

Aggernaes, A. and Haugsted, R. (1976) Experienced reality in three to six year ol
children: a study of direct reality testing. *J. Child Psychol. Psychiat.* **17,** 323–335.

Summary—Seven qualities, representing different aspects of experienced reality, ar
defined. Examples are given of questions which are useful in evaluation of these qualiti
connected to everyday experiences, such as sensory perceptions, thoughts of imaginar
items, and thoughts of real objects or real abilities in others or in oneself. A study of 4
preschool children indicates that such children understand the questions used, so th
an investigational technique using the defined qualities can provide a simple, direc
and reasonably reliable evaluation of reality testing. Some marked differences are four
in reality testing between non-psychotic adults and 3-yr-old normal children.

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ethnic preferences,
infant school children

Madge, Nicola J. H. (1976) Context and the expressed ethnic preferences of infa
school children. *J. Child Psychol. Psychiat.* **17,** 337–344.

Summary—Forty-four children—white and black, boys and girls—from the
classes of a London multi-racial infants' school were given several tests designed
reveal racial awareness and racial preferences. It was found that the children w
aware of ethnic differences but that the extent and direction of their expressed eth
preferences were strongly influenced by the situational context and by the compet
variables upon which their choices of figures could alternatively be based.

NOTES FOR CONTRIBUTORS

General

1. Submission of a paper to the Journal will be held to imply that it represents an original contribution not previously published (except in the form of an abstract or preliminary report); that it is not being considered for publication elsewhere; and that if accepted by the Journal it will not be published elsewhere in the same form, in any language, without the consent of the Editors.
2. Papers should be submitted to any Editor whose name and address appears on the inside front cover of the Journal.
3. Reprints can be obtained at a reasonable cost if ordered at the time when the first proofs are returned. A reprint order form will be sent with the galley proofs.

Manuscript Requirements

1. Papers submitted should be concise and written in English in a readily understandable style. The typescript, where possible, should follow the conventional form—introduction and review of literature, materials and method, results, discussion. A brief summary, not exceeding 100 words, must be provided: this will be printed at the end of the paper. Manuscripts should be typewritten, *double spaced* on A4 paper, and should be submitted *in duplicate* to facilitate refereeing. In the case of a long title, an abbreviated version of it should be supplied by the author for the page heads. It will be appreciated if authors clearly indicate any Greek characters. To conserve space, *less important portions of the papers*, such as description of methods, records of experimental results, etc. *should be marked for printing in smaller type*. Descriptions of techniques and methods should normally be given in detail *only when the are unfamiliar*. The address of the author to whom requests for reprints should be directed must be given at the end of the manuscript. Authors will receive proofs for correction when their contributions are first set; page proofs will be sent only when the amount of alteration makes it advisable, but authors are requested to keep alterations at this stage to a minimum, or it may be necessary to make a charge. The author should retain a carbon copy for personal use. Please note that the original manuscript and diagrams will be discarded one month after publication unless the Publisher is requested (on submission of the manuscript) to return original material to the author.
2. Tables and figures should be so constructed as to be intelligible without reference to the text. The location of figures and tables in the text should be clearly indicated. In the interest of economy and to prevent the introduction of errors, figures and tables will be reproduced by photo-offset means, directly from the authors' typed manuscript. In case of difficulty please contact the photoreprographic unit of your institution. Every table should be provided with an explanatory caption, and each column should carry an appropriate heading. Every figure should have a legend typed on a separate sheet. Units of measure should always be clearly indicated. The following standard characters may be used.

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3. Illustrations should accompany the manuscript on separate sheets, and legends should be kept to a minimum. Line drawings or good photo prints may be provided. Line drawings should include all relevant details. It is not possible to reproduce prints with weak lines or damaged characters. Illustrations for reproduction should normally be about twice the final size required. Half-tones should be included only where they are essential and they should be glossy prints, mounted on separate sheets. All photographs, charts and diagrams should be referred to as "Figures" and numbered consecutively in the order in which they are first referred to in the text.
4. References should be quoted in the text as follows: Smith and Brown (1950). Full references should be given at the end of the article in alphabetical order, and not in footnotes. References to journals should include authors' names and initials, date of publication (in brackets), the full title of the paper, the abbreviated title of the journal (underlined), the volume number, and inclusive page numbers. Titles of journals should be abbreviated as in the *World List of Scientific Periodicals*. References to books should include authors' names and initials, year of publication (in brackets), title of book (underlined), publisher and location.
   Examples:

   Sears, R. R., Whiting, J. W. W., Nowles, V. and Sears, P. S. (1953) Some child-rearing antecedents of aggression and dependency in young children. *Genet. Psychol. Monogr.* **47,** 135–234.

   Piaget, J. (1953) *The Origins of Intelligence in Children* (Translated by Cook, M.), Routledge & Kegan Paul, London.
5. Nomenclature: Owing to the international character of the journal, no rigid rules will be observed. Each paper should be consistent within itself as to nomenclature, symbols and units

-8 FEB 1977

JOURNAL OF CHILD PSYCHOLOGY AND PSYCHIATRY

1976 VOLUME 17 NUMBER 4 OCTOBER

CONTENTS

Anniversary Notice:

RONALD MACKEITH: The Association for Child Psychology and Psychiatry 1956–1976 249

BARBARA TIZARD, JANET PHILPS and IAN PLEWIS: Play in pre-school centres—I. Play measures and their relation to age, sex and I.Q. 251

BARBARA TIZARD, JANET PHILPS and IAN PLEWIS: Play in pre-school centres—II. Effects on play of the child's social class and of the educational orientation of the centre 265

DAVID M. WRIGHT, IRVIN MOELIS and LAWRENCE J. POLLACK: The outcome of individual child psychotherapy: increments at follow-up . . . 275

HUGH LYTTON: The socialization of 2-yr old boys: ecological findings . . 287

F. J. O'HAGAN: Gang characteristics: an empirical survey 305

EDWARD MUELLER and ADRIENNE RICH: Clustering and socially-directed behaviors in a playgroup of 1-yr-old boys 315

A. AGGERNAES and R. HAUGSTED: Experienced reality in three to six year-old children: a study of direct reality testing 323

NICOLA J. H. MADGE: Context and the expressed ethnic preferences of infant school children 337

Annotations:

NORMAN FREEMAN: Children's drawings—cognitive aspects 345

ANTHONY J. COSTELLO: Pre-verbal communication 351

Book Reviews 355

Announcements 376

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